CLINICO-MICROBIOLOGICAL PROFILE OF WOUND INFECTIONS IN ADMITTED PATIENTS.

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BY

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PARENTS

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ABSTRACT

Introduction: A wound represents a disruption of the normal structure and function of the skin and soft tissue due to various mechanisms and etiologies Postoperative wound infection is the most common complication faced by surgeon since the advent of surgery. Surgery without sepsis remains a difficult task. The widespread and indiscriminate use of antibiotics has led to the progressive development of resistance to penicillin and many other antibiotics

Aims and objectives: To isolate bacteria causing wound infections. Characterisation and antimicrobial susceptibility of the isolates.

Materials and methods: This study was conducted for a period of one year from January 2019 to December 2019 in the Department of Microbiology, DMCH, Ludhiana. All wound exudate samples from patients suspected of wound infections admitted in the hospital were included. Bacteria were isolated from various wounds and further characterisation and antimicrobial susceptibility testing was done.

Results: A total of 882 patients suspected with wound infections admitted in DMC Hospital were enrolled in the study. Out of 882 patients, 267 patients were culture positive and a total of 285 various Gram negative and Gram positive isolates were obtained. Out of total 285 isolates, 60.22% were multi-drug resistant and 39.77% were extensively drug resistant. No organism with Pan-drug resistance was obtained. Of 125 post-operative wounds, clean wounds were 21 (16.8%), clean contaminated were 29(23.2%), contaminated 58(46.4%) and dirty 17(13.6%). 118 (49.8%) isolates were ESBL producers, 50 (21.1%) were AmpC producers and (20.3%) were MBL producers. 27(65.85%) isolates were MRSA. Incidence of *Staphylococcus aureus* was (29.2%) in clean wounds. *Escherichia coli* was highest in clean contaminated wounds (44.2%). In contaminated and dirty wounds *Escherichia coli* was seen to be (37.2%) and (27.9%) respectively.

Conclusion: This study provides the data of predisposing risk factors and its causative microbial flora for various wound infections in our tertiary care. The high level of resistance among bacteria limits the use of antimicrobial agents for therapy. To conclude, awareness as well as detection of these organisms in hospital set up, coupled with stringent hospital infection control practices and judicious use of antibiotics will help us fight this deadly menace.

Keywords: Wound infections, Antimicrobial susceptibility testing.

ABBREVIATIONS

AMK	Amikacin
AMC	Amoxicillin/clavulanic acid
AMP	Ampicillin
AST	Antibiotic susceptibility testing
CAZ	Ceftazidime
CDC	Centre for Disease Control
CLSI	Clinical and Laboratory Standards Institute
COT	Cotrimoxazole
CRE	Carbapenem resistant Enterobacteriaceae
CSL	Cefoperazone sulbactam
CTR	Ceftriaxone
CXM	Cefixime
DM	Diabetes mellitus
DOR	Doripenem
E.coli	*Escherechia coli*
ESBL	Extended spectrum ß lactamases
ERT	Ertapenem
GEN	Gentamicin
GNB	Gram negative bacilli
HAI	Health Care Associated Infections.
ICUs	Intensive care units
IMP	Imipenem

LZ	Linezolid
M	Medically
MBL	Metallo ß lactamases
MDR	Multi drug resistant
MER	Meropenem
MHA	Mueller Hinton agar
MRSA	Methicillin sensitive Staphylococcus aureus
MSSA	Methicillin sensitive Staphylococcus aureus
PEN	Penicillin
PDR	Pan drug resistant
PIP	Piperacillin
RIF	Rifampicin
S	Surgically
Spp.	Species
SSI	Surgical Site Infections
TEC	Teicoplanin
TET	Tetracycline
TG	Tigecycline
TIC	Ticarcillin
TZP	PiperacillinTazobactam
VAN	Vancomycin
VRE	Vancomycin resistant *Enterococci*
XDR	Extensively drug resistant

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INTRODUCTION

A wound represents a disruption of the normal structure and function of the skin and soft tissue due to various mechanisms and etiologies.[1] It can also be defined as a breach in the skin and the exposure of subcutaneous tissue following loss of skin integrity provides a moist, warm and nutritive environment that is conducive to microbial colonization and proliferation.[2] Wound infections are one of the most common hospital acquired infections and are an important cause of morbidity and account for 70-80% mortality.[3]

Wound complications are important causes of early and late postoperative morbidity following laparotomy. Surgical wounds in normal, healthy individuals heal through an orderly sequence of physiologic events that includes inflammation, epithelialization, fibroplasia, and maturation. Mechanical failure or failure of wound healing at the surgical site can lead to disruption of the closure leading to seroma, hematoma, wound dehiscence, or hernia.[4]

Postoperative wound infection is the most common complication faced by surgeon since the advent of surgery. Results of infection cause delayed recovery and may leave permanent disability. But, despite efforts to control it and better understanding of sepsis, wound infection is still a clinical problem and some infections in clean wounds still remain unexplained. Wound access to bacteria can be prevented by aseptic surgical techniques, or bacteria can be removed substantially by early wound toilet and uncomplicated healing can be expected. However, if by some reason, microorganisms gain access and infection becomes established, antibiotics contribute to prevention and treatment of infection. With the influx of the voluminous number of antibiotics, the clinician often finds himself overwhelmed by the variety of the options. Determination of the etiologic agent is vital in the final choice of the antibiotics. Most especially in the situation where empirical treatment has to be started without the benefit of the Gram-stain or culture and sensitivity results, a working knowledge of the most likely organism and the antibiotic sensitivity/resistance pattern will be of great help.[5]

Patients sustaining a SSI, compared with those who do not, remain in the hospital twice as long, are more likely to require an intensive care unit (ICU) admission, and have a 6 times higher rate of readmissions.[6] The relatively high SSI frequency combined with their substantial associated clinical and economic consequences have resulted in efforts to reduce their occurrence.[7]

The wound infection depends on a complex interaction between host factors like immunity, nutritional status and age, wound related factors like magnitude of trauma, dead space, devitalisation and presence of hematoma and microbial factors like toxins, invasion and resistance to antibiotics.[8]

Exogenous wound infections include those associated with traumatic injury or decubitus pressure ulcer, animal or human bites, burns or foreign bodies in skin or mucous membrane.

Endogenous wounds and abscess may be associated with appendicitis, cholecystitis, cellulitis, dental infection, septic arthritis, osteomyelitis, empyema, and sinusitis. Most of these processes are nosocomial contracted after surgical manipulation, invasive procedures, and placement of prosthesis. Others derived from hematogenous spread from primary site of infection.[9]

Wound infections are mostly due to nosocomial pathogens that differ from country to country and from hospital to another within the same region,[10] which remains the major source of postoperative morbidity.[11] Such infections not only increase the cost of hospitalization but also can lead to antimicrobial resistance development in patient, which can further spread to other individuals in community, thus can affect the primary care also.

Certain underlying comorbid conditions like anaemia, diabetes, and smoking may alter or decrease the immune status, thus significantly increase the risk of SSI. They are also an important cause of increased preoperative stay of the patient which also increases the chances of postoperative wound infections.[12]

The era of chemotherapy is about 60 years old; however, surgery without sepsis remains a difficult task. The widespread and

indiscriminate use of antibiotics has led to the progressive development of resistance to penicillin and many other antibiotics.[13]

The emerging antibiotic resistance among bacterial pathogens in the hospital and community has been a concern for the health care providers due to the limited treatment options.[14]

Reporting of ESBL, Amp C β - lactamase and carbapenemase producing organisms will help in preventing spread of multidrug resistant isolates.[15]

Antibiotics, although, have been of great value in treatment and in prophylaxis to prevent infections, the timing of administration, choice of antimicrobial agent, durations of administration have clearly defined the value of antibiotics in reducing wound infections.[16] Advance in control of infection have not completely eradicated the problem of the wound infection because of development of drug resistance.[17]

The present study was carried out to identify the causative agent of wound infection and antibiotic susceptibility pattern of the isolates, which will be beneficial as guidance for medical practitioners to select empirical antimicrobial therapy and on the implementation of infection control measures that plays an important role in minimizing the emergence rate of antimicrobial resistance (MDR).[18]

The potential wound pathogens are Gram positive cocci (Staphylococcus aureus, Streptococcus species, Coagulase negative Staphylococcus, Enterococcus species), Gram negative bacilli (Escherichia coli, Pseudomonas aeruginosa, Klebsiella pneumoniae, Proteus species, Enterobacter species), anaerobes (Bacteroides, Clostridial species.[19]

Every year, millions of people experience burns, suffer from non healing wounds, or have acute wounds that become complicated by infections, dehiscence, or problematic scarring. Effective wound treatment requires carefully considered interventions often requiring multiple clinic or hospital visits and the resulting costs of wound care are staggering.[20-22] Minimizing the incidence of postoperative wound infection relies on adequate sepsis and antisepsis and preservation of the local host defenses.[17] Advances in infection control have not

completely eradicated these problems, because of the high prevalence of drug resistance pathogens.[23]

Many Gram negative bacteria possess a naturally occurring, chromosomally mediated β-lactamase. These enzymes may have evolved from penincillin binding proteins with which they show some sequence homology. This development was likely due to selective pressure exerted by β-lactam producing soil organisms found in the environment. Extended- spectrum β-lactamases (ESBLs) and plasmid mediated AmpC β-lactamases are of increasing concern and have been detected worldwide. Reports of carbapenem-hydrolyzing β-lactamases have been increasing over the last few years. This phenotypic grouping of enzymes is comprised of a rather heterogeneous mixture of β-lactamases belonging to either molecular class A, which has a serine in the active site of the enzyme, or molecular class B, the metallo- β-lactamases, which have zinc in the active site. These β-lactamases are inhibited by clavulanate, but not by ethylenediaminetetraacetic acid (EDTA). While these enzymes hydrolyze imipenem well enough to provide resistance, they show much higher hydrolysis rates for ampicillin and cephaloridine, and have been found in strains that also possess an AmpC β-lactamases. This combination of enzymes provides resistance to a broad range of β-lactams.[24]

New β-lactamases suggests that bacterial pathogens are continuing to develop new mechanisms of resistance at an alarming rate.[25]

The main objective of our study was to isolate and identify organisms from various samples of suspected wound infections of hospitalised patients, study their antimicrobial susceptibility patterns and know the prevalence of ESBL, AmpC and MBL β-lactamases producing organisms and the prevelance of MRSA and VRE among the isolates.

AIMS AND OBJECTIVES

- To isolate bacteria causing wound infections.
- Characterisation and antimicrobial susceptibility of the isolates.

REVIEW OF LITERATURE

Microbiological laboratories are essential, to combat the spread of multiplying antibiotic resistance pathogens. It is vital for proper treatment of the patient. Infection control is the most important measure against multi-drug resistant pathogens causing infections. For hospitals it becomes critical to excel in diagnostic laboratory. Some organisms are falsely susceptible in routine tests and may not be recognised. This can lead to increase in the spread of pathogens due to patient receiving ineffective antibiotics. It is because of these pathogens our hospitals have become areas for nosocomial infections.[26]

In spite of their invaluable and well-established role, ICUs bring some degree of morbidity to patients, and nosocomial infection is clearly related to that. Such infections are associated with a considerable increase in morbidity and mortality of patients at a hospital as well as to significant increase in cost.[27] In some studies, hospital-acquired infection (HAI) rates have ranged from 1% in parts of Europe and North America to more than 40% in certain parts of Asia, Latin America and sub-Saharan Africa.[28] Centers for Disease Control and Prevention defines surgical site infections (SSIs) as infections that develop within 30 days after an operation or surveillance of surgical wound infection implemented within 90 days after surgery when an implant is placed. It is categorized into 3 levels (superficial incisional, deep incisional, and organ or space infection).[29]

Antibiotics in surgical wards are indicated for prevention of postoperative infection or for the treatment of established infections.[30,31] Almost 30% to 50% of antimicrobials used in hospitals are prescribed for surgical prophylaxis and of which 30% to 90% is inappropriate.[32,33] Cephalosporin antibiotics (such as cefazolin) are first-line agents for most surgical procedures, targeting the most likely organisms while avoiding broad-spectrum antimicrobial prophylaxis that may lead to the development of antimicrobial resistance. The

duration of surgical antimicrobial prophylaxis (SAP) should not exceed 24 hours.[34]

Bacteria from clinical and non-clinical settings are becoming increasingly resistant to conventional antibiotics. 10 years ago, concern centred on Gram-positive bacteria,[35,36] particularly methicillin-resistant *Staphylococcus aureus* and vancomycin resistant *Enterococ u s* spp. Now, however, clinical microbiologists increasingly agree that multidrug-resistant Gram-negative bacteria pose the greatest risk to public health. The increase in resistance of Gram-negative bacteria is faster than in Gram-positive bacteria and there are fewer new and developmental antibiotics active against Gram-negative bacteria and drug development programmes seem insufficient to provide therapeutic cover in 10–20 years.

In some ways the new resistant gram-negative pathogens are even more worrying, as their more difficult to penetrate outer membranes and higher prevalence of efflux pumps make them naturally resistant to many antibiotics. Carbapenem resistant gram negative strains, particularly *Enterobacteriaceae* (CRE), are becoming increasingly common place. The main gram-negative threats are multi- (MDR) and pan- (PDR) drug resistant *Escherichia coli, Pseudomonas aeruginosa, Acinetobacter, Klebsiella pneumoniae, Enterobacter species.*[37,38]

Gram-negative bacteria of many genera possess a naturally occurring, chromosomally mediated β-lactamase. These enzymes are thought to have evolved from penicillin-binding proteins, with which they show some sequence homology. This development was likely due to the selective pressure exerted by β-lactam-producing soil organisms found in the environment. The first plasmid-mediated β-lactamase in gram-negatives, TEM-1, was described in the early 1960s. Within a few years after its first isolation, the TEM-1 β-lactamase spread worldwide and is now found in many different species of members of the family *Enterobacteriaceae, Pseudomonas aeruginosa, Haemophilus influenzae*, and *Neisseria gonorrhoeae*. Another common plasmid-mediated β-lactamase found in *Klebsiella pneumoniae* and *E. coli* is SHV-1 (for sulphydryl variable). The SHV-1 β-lactamase is

chromosomally encoded in the majority of isolates of *K. pneumoniae* but is usually plasmid mediated in *E. coli*.[39]

Enterobacteriaceae produce ESBL carry plasmid-encoded enzymes that can efficiently hydrolyse and confer resistance to a variety of β-lactam antibiotics, but are not resistant to carbapenems or cephamycins. Besides β-lactam class of antibiotics, ESBL producers are commonly resistant to different families of antibiotics including fluoroquinolones, aminoglycosides and trimethoprim-sulfamethoxazole (SXT), which contribute to the selection and persistence of multidrug-resistant (MDR) ESBL strains and plasmids in both clinical and community settings. These enzymes are predominantly found in *Escherichia coli* and *Klebsiella pneumoniae*, although they are also present in other members of the gram-negative bacilli (GNB).[40,41,42]

Resistance to extended-spectrum β-lactam antibiotics due to β-lactamases emerged quickly. Because of their increased spectrum of activity, especially against the oxyimino-cephalosporins, these enzymes were called extended-spectrum β-lactamases (ESBLs). Today over 150 different ESBLs have been described. These β-lactamases have been found worldwide in many different genera of Enterobacteriaceae and P. aeuruginusa.[39]

Three major group of enzymes are defined by their substrate and inhibitor profiles:[43]

Group1 Cephalosporinases that are not well inhibited with clavulanic acid.

Group2 Penicillinases, Cephalosporinases and broadspectrum β-lactamases that are generally inhibited by active site-directed β-lactamase inhibitors.

Group3 Metallo – β-lactamases that hydrolyse penicillins, cephalospoorins and carbapenems and that are poorly inhibited by almost all β-lactam containing molecules.

Functional characteristics have been correlated with molecular structure in a dendrogram for those enzymes with known amino acid sequences. These enzymes are the major cause of bacterial resistance to β-lactam antibiotics and have been subject of extensive

microbiological, biochemical and genetic investigations. Although a structural approach is the easiest and least controversial way to classify such a diverse set of enzymes, a functional classification provides the opportunity to relate these varied enzymes to their clinical role, i.e., by providing selective resistance to different classes of β-lactam antibiotics. Classification schemes for bacterial β-lactamases.[43]

Bush-Jacoby-Medeiros Group	**Molecular Class**	**Preferred substrates**	**Inhibited by: CA EDTA**	**Representative enzymes**
1	C	Cephalosporins	- -	AmpC enzymes from Gram negative bacteria; MIR-1
2a	A	Penicillins	+ -	Penicillinases from gram positive bacteria
2br	A	Penicillins, Cephalosporins	+ -	TEM-1, TEM-2, SHV-1
2be	A	Penicillins, narrow-spectrum and extended spectrum cephalosporins, monobactams	+ -	TEM-3 to TEM-26, SHV-2 to SHV-6, Klebsiella oxytoca K1
2br	A	Penicillins	± -	TEM-30 to TEM-36
2c	A	Penicillins, carbenicillin	+ -	PSE-1, PSE-3, PSE-4
2d	D	Penicillins, cloxacillin	± -	OXA-1 to OXA-11, PSE-2 (OXA-10)

2e	A	Cephalosporins	+ -	Inducible cephalosporinases from proteus vulgaris
2f	A	Penicillins, cephalosporins, carbapenems	+ -	NMC-A from Enterobacter cloacae, Sme-1 from serratia marcescens.
3	B	Mostly β-lactams, including carbapenems	- +	L1 from Xanthomonas maltophilia, CcrA from Bacteroides fragilis
4	ND	Penicillins	- ?	Penicillinase from Pseudomonas cepacia

ESBLs are typically inhibitor- susceptible β-lactamases that hydrolyse penicillins, cephalosporins and aztreonam and are encoded by mobile genes. The frequently encountered ESBLs belong to the CTX-M, SHV, and TEM families. ESBL producers are usually multi drug resistant,[39,44] but their cephalosporin and aztreonam resistance is not detected by susceptibility tests.[45] Many labs have adopted CLSI recommendations and only attempted to detect ESBLs in *Escherichia coli, Klebsiella pneumoniae, K. oxytoca* and *Proteus mirabilis*. Since ESBL genes are transmissible, it is important that ESBLs be tested for in other organisms in hospital and long- term care facility patient populations where ESBLs are encountered. This may be unnecessary for community isolates, which at this appear to be predominantly CTX-M producing *E.coli*.[17]

TEM-1 is the most commonly encountered β-lactamase in Gram-negative bacteria. Up to 90% of ampicillin resistance in E. coli is due to

production of TEM-1. TEM-1 is able to hydrolyse penicillins and early cephalosporins such as cephalothin and cephaloridine. TEM-2, the first derivative of TEM-1, had a single amino acid substitution from the original β-lactamase. TEM-3, originally reported in 1989, was the first TEM-type β-lactamase that displayed the ESBL phenotype. In the years since that first report, over 90 additional TEM derivatives have been described. Some of these β-lactamases are inhibitor- resistant enzymes, but the majority of the new derivatives are ESBLs. Although TEM- type β-lactamases are most often found in *E. coli* and *K. pneumoniae*, they are also found in other species of Gram-negative bacteria with increasing frequency. TEM-type ESBLs have been reported in genera of *Enterobacteriaceae* such as *Enterobacter aerogenes*, *Morganella morganii, Proteus mirabilis, Proteus rettgeri and Salmonella spp*.[46-54] Interesting mutants of TEM -lactamases are being recovered that maintain the ability to hydrolyze third-generation cephalosporins but which also demonstrate inhibitor resistance. These are referred to as complex mutants of TEM (CMT-1 to -4).[55-58]

In a study conducted by Rahbar in 2006, a total of 202 gram negative bacteria were isolated - 67 isolates of *Pseudomonas aeruginosa*, 65 isolates of *Acintobacter baumanii* and 70 isolates of *K.pneumoniae* were tested. Of 70 isolates of *K. pneumoniae* 56 (80%) were ESBLs. All isolates of *K. pneumoniae including* ESBLs were susceptible to Imipenem & Meropenem. *P.aeruginosa* isolates exhibited 7.5% and 40.2% resistance to Imipenem and Meropenem respectively. The majority isolates of *Acinetobacter baumanii* were multi-drug resistant and resistance of this organism to Imipenem and Meropenem was 27.7% and 38.5% respectively.[59]

Shivappa in 2011 at Mysore processed 2548 clinical samples including 98 (3.85%) isolates of *Pseudomonas* and 69 (2.71%) isolates of *Acinetobacter* and found 15.3% *Pseudomonas* strains and 43.5% *Acinetobacter* strains resistant to Imipenem. They reported 46.7% of *Pseudomonas* isolates and 70% of *Acinetobacter isolates* positive for carbapenemase production by Modified Hodge test and recommended this test as a screening test for detecting carbapenemase production.

They observed both double disk synergy test and disk potentiating tests as being equally effective for the same.[60]

A study conducted in Nigeria on antibiogram and plasmid profiling of carbapenemase and extended spectrum β-lactamase (ESBL) producing *Escherichia coli* and *Klebsiella pneumoniae* by Motayo B O in 2012 gave the following results - an ESBL prevalence rate of 21.6% and carbapenem- resistance rate of 9.3%. Antibiotic susceptibility profile of ESBL isolates showed 100.0% resistance against Amoxycillin, Cotrimoxazole and Erythromycin. Moderate susceptibility was recorded against the quinolone class of antibiotics; Meropenem remained the most active antibiotic against ESBL isolates with 62.5% against *E. coli* and 60% against *K. pneumoniae.*[61]

During June 2012 - March 2013, Doddaiah conducted a study on prevalence of ESBL, AmpC and carbapenemase among gram negative bacilli isolated from clinical specimens in which total 378 GNB were isolated. Out of which *E. coli* (140), *Klebsiella spp.* (106), *Pseudomonas spp.* (75), other non-fermenter GNB (25), *Citrobacter* (12), *Proteus* (12), *Providencia* (04) and *Enterobacter* (04) were obtained. One or more β-lactamases were produced by 197 and 181 were negative. ESBL, AmpC and carbapenemase production was found to be 33.86%, 14.24% and 18.25% among the GNB studied respectively.[62]

Imipenem EDTA combined disc diffusion test was used by Wadekar et al for the detection of MBL in clinical isolates. Out of 100 Enterobacteriaceae isolates- *E.coli* (52), *Klebsiella spp.* (24), *Enterobacter spp.* (18) & (6) *Citrobacter spp.* were detected. 18(18%) were MBL producers & rest were ESBL producers. None of the isolates showed the co-existence of ESBL and MBL in the same isolate.[63]

In 2012 a study conducted by Kumar on evaluation of different phenotypic methods to detect ESBL and MBL production in *Esch. coli&Klebsiella spp.* - 357 isolates of *Esch. coli* & 350 of *Klebsiella spp.* isolates were obtained. In *E.coli* 40 isolates were tested for MBL production. Out of these, 17 isolates were resistant to Imipenem. MBL production was observed in 5 isolates (12.5%) by the MHT. Of these 5

isolates, 4 isolates (10%) tested positive by both the combined disk test and MBL E – test. Among *Klebsiella* isolates, MBL production was observed in 35.1% of the 97 isolates by MHT and 21.6% by both the combined disk test and E - test. 3 isolates of *Esch. coli* and 15 of *Klebsiella spp.* were multidrug resistant.[64]

Phenotypic detection of Metallo – Beta - Lactamase Enzyme among gram negative bacteria isolated from burn patients in Sulaimani, Iraq by Anoar showed the following results – Out of 177 isolates from burn patients Metallo Beta -Lactamase were detected in 31.07% by double disk synergy test, 28.8% by combined disk test and 20.9% were recorded for Modified Hodge test.[65]

In a study by S. singhal et al, in 2005, 272 isolates were screened for both ESBL and AmpC b-Lactamase production by modified double disk approximation method (MDDM). Of this 173 (64%) isolates were found to be ESBL positive whereas 38 were ESBL negative. Out of the total isolates 73% of *Klebsiella* spp. (n=71) and 62% of *E. coli* (n=80) were found to be ESBL positive. 61 showed reduced susceptibility to either of the test drugs (ceftazidime or cefotaxime) and cefoxitin. Three of these isolates also showed blunting of the inhibition zone of either ceftazidime or cefotaxime adjacent to cefoxitin disk were considered as presumptive AmpC producers and further confirmed by three-dimensional extraction method and AmpC disk test. AmpC b-lactamase production was confirmed in 22 isolates (8%) of the 272 isolates or 36% of the 61 screen positive isolates by the three-dimensional test. Aclear distortion of the zone of inhibition of cefoxitin was observed in 18 isolates whereas three isolates showed minimal distortion and were considered as indeterminate strains. Of the 61 isolates 22 isolates, which were positive by extraction procedure, also showed positive results by AmpC disk test. Indentation indicating strong AmpC producer was observed in 15 isolates whereas flattening (weak AmpC) was observed in seven isolates. Three indeterminate isolates (three dimensional test) also showed flattening in AmpC disk test indicating for weak AmpC enzyme.[66]

In another study by Loveena Oberoi and others, Of the 273 gram negative isolates, 96(35.16%) were ESBL producers, followed by 30(10.98%) metallo β-lactamase (MBL) producers and 15(5.4%) AmpC producers. The major ESBL producer was Escherichia coli (56.25%), followed by Pseudomonas aeruginosa (18.75%) and Klebsiella pneumoniae (15.62%). The AmpC production was also maximally seen in Escherichia coli (86.67%), while the MBL production was mainly observed in Klebsiella pneumoniae (33.4%) and Pseudomonas aeruginosa (26.67%). Of the 44 strains of Klebsiella pneumoniae, 35 were β lactamases producers (79.54%). The other major β lactamases producers were Citrobacter freundi (75.0%) and Escherichia coli (73.38%).[67]

Screening for *β*-lactamase enzymes like ESBLs, MBLs, and AmpC was performed using ceftazidime, imipenem, and cefoxitin respectively. Out of 417 isolates, 293 showed resistance to one of the three drugs. Of these 293 isolates, 283 isolates (67.86%) were resistant to ceftazidime, which were tested for ESBL production, 15 (3.59%) were resistant to imipenem, which were checked for carbapenemases production, and 114 (27.33%) were resistant to cefoxitin, which were checked for AmpC production. Ceftazidime resistant 269 isolates (95.05%) of 293 were ESBL producers which were confirmed by (DDDT). *E*. *coli* 154 (54.41%) and *K*. *pneumoniae* 83 (29.32%) were the two most common isolates producing this enzyme. Cefoxitin-resistant 114 isolates on confirmation, showed only 53 (46.49%) as AmpC producers.[68]

From August 2010 to July 2011 a study on evaluation of various methods for detection of Metallo-β-Lactamase (MBL) production in gram negative bacilli by Pandya used 4 different phenotypic test methods - (i) Combined disk synergy test with Imipenem (CDST-IPM), (ii) Double-disk synergy test with Imipenem (DDST-IPM), (iii) CDST with Ceftazidime (CDST-CAZ) and (iv) DDST with Ceftazidime (DDST - CAZ). Out of 450 clinical isolates of GNB, 27 isolates (6.00%) were resistant to Imipenem, Ertapenam, Meropenam and third generation Cephalosporins. These 27 isolates were considered screening positive and further tested for MBL production by four different methods. 26

isolates (96.30%) were MBL positive by CDST-IPM and 22 isolates (81.48%) were MBL positive by DDST-IPM. 23 isolates (85.19%) were MBL positive by CDST-CAZ and 12 isolates (44.44%) were MBL positive by DDST- CAZ. Prevalence of MBL production was highest in *Pseudomonas* (9.92%), followed by *Klebsiella pneumoniae* (7.26%), *Acinetobacter spp.* (7.14%) and *E. coli* (2.87%).[69]

Shivappa in 2011 at Mysore processed 2548 clinical samples including 98 (3.85%) isolates of *Pseudomonas* and 69 (2.71%) isolates of *Acinetobacter* and found 15.3% *Pseudomonas* strains and 43.5% *Acinetobacter* strains resistant to Imipenem. They reported 46.7% of *Pseudomonas* isolates and 70% of *Acinetobacter isolates* positive for carbapenemase production by Modified Hodge test and recommended this test as a screening test for detecting carbapenemase production. They observed both double disk synergy test and disk potentiating tests as being equally effective for the same.[60]

Another study conduted by Kamalraj on phenotypic detection of ESBL and MBL in non-fermenters showed the following results - Out of 103 non-fermenter only 16 (18%) isolates were MBL producers. There was no co-existence of ESBL and MBL in the same isolate. ESBL and MBL production was observed in *Pseudomonas* and *Acinetobacter* spp. isolated from various clinical samples.[70]

Prevalence of ESBL and MBL producing gram negative isolates from various clinical samples by Kaur detected a total of 276 isolates. Out of which 69 (25%) were ESBL producers, 70 (25.3%) were MBL producers and 26 (9.42%) were both ESBL and MBL producers. MBL production was maximum in *Klebsiella pneumoniae* (34.8%). In this study highest percentage of MBL production was seen in urine and pus isolates.[71]

Surgical site infections (SSI) are the third most commonly reported nosocomial infection and they account for approximately a quarter of all nosocomial infections. It has an adverse impact on the hospital as well as on the patient. It is responsible for increasing length of stay of patient which results in social and economic loss to the patients and family. Host factors, wound factors and surgery related factors are

implicated in the causation of SSI.[72] 180 patients underwent various surgeries in the general surgery department of K.R. Hospital, Mysore. Among them 39 developed surgical site infections giving a cumulative incidence of 21.66%. Of 39 SSIs 20 were grade 3 and 19 were grade 4 infections. SSIs were found more commonly among the aged, males, underweight and overweight, anaemics, diabetics, hypertensives, patients with longer preoperative waiting time, with multiple blood transfusions and without antibiotic prophylaxis.[73]

In another study 312 wound samples were collected from 213 patients, the most common bacterial species detected was Staphylococcus aureus (37%), followed by Pseudomonas aeruginosa (17%), Proteus mirabilis (10%), Escherichia coli (6%) and Corynebacterium spp. (5%). The most effective antibiotic against all these Gram-negatives was amikacin; P. mirabilis and E. coli were fully susceptible to this antibiotic; however, 28·3% of P. aeruginosa showed resistance to it. The isolates of P. aeruginosa showed 100% of resistance to ampicillin, amoxicillin /clavulanic acid, ertapenem and trimethoprim/sulfamethoxazole.

Moreover, P. mirabilis and E. coli also showed high resistance to ampicillin. Meropenem, ertapenem and fosfomycin were 100% active against E. coli.[74]

In a study conducted at Ahmedabad between September 2010 and May 2011 that included all the clean and clean contaminated surgeries and the contaminated and dirty surgeries which were conducted in this hospital during that period. 916 surgical wounds were studied. The overall infection rate in these wounds was 8.29%. The infection rate in the wounds following dirty class (24.05%) surgeries was significantly higher, followed by the contaminated (16.49), clean contaminated (7.77%) and clean surgeries (3.4%) respectively. The infection rate was directly proportional to the preoperative hospitalization. Staphylococcus aureus (21.5%) and E coli (21.5%) were the commonest pathogens which were isolated, followed by Pseudomonas aeruginosa (17.04%) and Klebsiella pneumoniae (14.77%). The infection rate was highest in the post-appendicectomy wounds (18.4%).[75]

In a study from Puduchery, a total of 256 isolates were obtained from culture positive cases of wound due to occupational injuries in the fishermen community. The most common pathogen isolated was Staphylococcus aureus 136 (53.1%) followed by Coagulase Negative Staphylococcus spp. (CONS) 34 (13.3%), Pseudomonas spp. 23 (9.0%), Streptococcus pyogenes 22 (8.6%), E.coli 20 (7.8%). Methicillin Resistant Staphylococcus Aureus (MRSA) were 83 (61.0%) of Staphylococcus aureus, 32 (23.5%) were D-test positive (inducible clindamycin resistance) and 2 (1.5%) were resistant to vancomycin. Vancomycin Resistant Enterococcus (VRE) was found to be 1 (33.3%) in the study. 2 (8.7%) of Pseudomonas spp. were reported was Metallo β lactamase (MBL) producers and 1 (5.0%) Multidrug Resistant (MDR) E.coli was isolated. 14 (60.9%) of Pseudomonas spp., 11 (55.0%) of E.coli and 2 (33.3%) of Klebsiella pneumoniae isolates were Extended Spectrum Beta Lactamase (ESBL).[76]

In a study from mumbai, total number of isolates were 612 (69.54%) in which 375 (61.27%) were Gram negative bacteria and 233 (38.07%) were Gram positive bacteria in wound infections. Most common isolate was Pseudomonas aeruginosa 110 (29.33%) followed by Escherichia coli 99 (26.4%), whereas Methicillin Sensitive Staphylococcus Aureus (MSSA) 75 (32.19%) predominated among the gram positive bacteria followed by MRSA 59 (25.32%). Majority of gram negative pathogens were sensitive to Meropenem and Piperacillin/Tazobactum.[77]

During a five-year study period in Haryana, Patient samples were tested for growth of microorganisms and antibiotic susceptibilities. The percentage of positive samples remained stable throughout the study period. SPICE group (Serratia, Providencia, ‘Indole positive’ Proteus and other common species of Proteus, Citrobacter, and Enterobacter species) showed a decreasing susceptibility phenotype to each tested antibiotic, with only three exceptions (Providencia with ceftriaxone, Citrobacter with gentamicin, and Enterobacter with doripenem). Antibiotic usage was found to increase over the study period. The quantity of antibiotic use significantly increased at several points of time compared to the start of the study. Resistance in the SPICE group

could be attributed to a chromosomal β-lactamase gene known as Amp C, which is induced after a period of exposure to β-lactam antibiotics.[78]

Out of 562 K. pneumoniae isolates recovered during November 2014 to June 2015 in our tertiary care hospital in Pondicherry, 117 MDR strains were phenotypically analysed for presence of various types of beta lactamases and carbapenemases. Out of these isolates, 91(77.7%) isolates were ESBL positive, 27 isolates (23%) were identified as AmpC beta lactamase producer, 16 isolates (48%) were identified as MBL producers.[79]

In a 10 month hospital based study, total of 70 bacterial isolates were obtained from 400 patients with Diabetic foot ulcers and non-diabetic foot ulcers from pus and tissue specimens. Antibiogram profiles of diabetic foot ulcer isolates were sensitive to colistin and resistant to all the major groups of antibiotics classes. Non-diabetic foot ulcer isolates were sensitive to amikacin, ceftriaxone, gentamicin piperacillin/tazobactam, imipenem, meropenem, colistin and resistant to ceftazidime, cefotaxime, ciprofloxacin, co-trimoxazole, piperacillin, tetracycline. It showed that out of 35 DFU isolates 13 (37.14%) produced ESBL, 10 (28.57%) produced MBL and 9 (25.71%) formed strong biofilm. Further in 35 non DFU isolates 8 (22.85%) produced ESBL, 5 (14.28%) produced MBL and 3 (8.57%) formed strong biofilm. Almost all the isolates of Multi-Drug Resistance (MDR) were ESBL and MBL producer as well as biofilm formers.[80]

A total of 94 organisms, 41(39.4%) from bone tissue, 31(29.8%) from deep tissue and 22 (21%) from bone and deep tissue were isolated. The isolation rates of Gram negative and Gram positive organisms were 71.3% and 28.7%. The common isolates were S.aureus, Proteus spp., E.coli, Enterobacter spp., Pseudomonas spp. The rate of Methicillin Resistant Staphylococcus Aureus (MRSA) and Clindamycin resistance in S. aureus were 41% and 38%. Extended Spectrum beta lactamases (ESBL) production was seen in 27.27% of E.coli and Klebsiella spp. The rates of resistance to amikacin, ciprofloxacin and

carbapenem among Gram negative bacilli were 28.5%, 23.5% and 15.58% respectively.[81]

The emergence and spread of Multi-Drug Resistant (MDR) Non-Fermenting Gram-Negative Bacilli (NFGNB) in Intensive Care Units (ICU) and their genetic potential to transmit diverse antibiotic resistance regardless of their ability to ferment glucose poses a major threat in hospitals. In a 6 month cross sectional study from October 2015 to March 2016 in an ICU of tertiary care hospital, Acinetobacter baumannii was most common bacteria isolated 63 (63.63%) which was followed by Pseudomonas aeruginosa 25 (25.25%), Elizabethkingia meningoseptica 7 (7.07%) and Stenotrophomonas maltophilia 4 (4.04%). Most alarming was the carbapenem resistance, which is considered as last choice in life threatening infection. Overall of 81.8% resistance to imipenem and 85.8% to meropenem was seen in non-fermenting Gram negative isolates.[82]

Continuous surveillance of these changing trends has become a necessity and hence this study was undertaken to identify the bacteriological profile and their antibiotic sensitivity. [83]

MATERIALS AND METHODS

This study was a prospective study conducted on patients admitted Dayanand Medical College and Hospital, Ludhiana over a period of one year.

SOURCE OF DATA

The pus, wound swab, exudate samples obtained from various types of wounds from the patients suspected with wound infections admitted in the various wards and ICUs of DMCH, Ludhiana were included in the study.

METHOD OF COLLECTION OF DATA

Inclusion criteria:

- Admitted patients of age group >18 years.

Exclusion criteria:

- Admitted patients of age group<18 years.

DURATION OF STUDY:-

This study was conducted for a period of one year from January 2019 to December 2019 in the Department of Microbiology.

Sample Collection:[84]

- Pus, from wounds (post-operative and others), burns and abscesses were collected in sterile containers using all aseptic precautions.
- Wound exudate specimens were collected by sterile swabs. The wound was wiped with sterile saline and the swab was rolled along the leading edge of the wound and placed in a sterile test tube. Two swab specimens were collected, one for smear examination and one for culture.
- Tissue bits were collected using sterile punch biopsy forceps in a sterile test tube containing a small amount of sterile saline to keep the specimen moist.

Transportation: Samples were collected and transported immediately to microbiological laboratory.

Processing of samples:

- All samples received were processed as per standard protocol.

- Once the specimen reached the laboratory, smears were prepared by smearing the swab or purulent material on a clean glass slide. Tissue specimens were ground or minced using sterile scissors and forceps before processing. Smears were routinely subjected to Gram staining and examined.

Direct microscopy

Gram staining was done.

Gram's staining:[84]

1. A clean glass slide was taken and a smear was prepared.
2. The smear was air dried and fixed by flaming.
3. The slide was placed with smear upwards over a staining rack.
4. Smear was covered with gentian violet which was left to act for one minute.
5. The slide was held at a steep slope with the help of forceps. Gram's iodine solution was poured from one end and the gentian violet stain was washed off.
6. The smear was covered with fresh iodine solution and the slide was left horizontally on the rack for one minute.
7. Decolourization of the smear was done with acetone and immediately washed with water.
8. Slide was covered with 0.5% safranine for 30 seconds.
9. It was washed thoroughly with water, dried and seen under oil immersion lens of the microscope.

Culture[84]

All samples were inoculated by a sterile inoculating loop on Blood agar plate and Mac Conkey's agar plate. Culture plates were incubated at 35-37°C for 24-48hrs.

Composition of the media:-

Blood agar

The medium was prepared by adding sterile sheep blood (5-10%) to the sterile nutrient agar that had been melted and cooled to 50˚C. Double layered blood agar was prepared. A thin layer of melted nutrient agar, about 7ml for 9cm petri dish, was poured and allowed to

set. Then thin layer of 5% blood agar was poured on the top of the first layer.[84]

MacConkey's Agar:

Preparation: The peptone and taurocholate were dissolved in water by heating. To this agar was added and dissolved in the steamer or autoclave. pH was adjusted to 7.5. Lactose and neutral red were added and mixed. Then was autoclaved with free steam for 1 hour and then at 115℃ for 15min.[84]

Peptone	20g
Sodium taurocholate	5g
Water	1 litre
Agar	20g
Neutral red solution, 2% in 50% ethanol	3.5ml
Lactose, 10% aqueous solution 100	100ml

Identification-

Isolates will be identified on the basis of Gram staining, colony characteristics, motility, biochemical reactions, VITEK-2 etc.

ANTIMICROBIAL SUSCEPTIBILITY TESTING:-Growth was identified by colony characteristics, Gram staining and the VITEK 2 system. Suspensions were prepared by emulsifying bacterial isolates in 0.45% saline to the equivalent of a 0.5 McFarland turbidity standard. The same suspension was used for identification and AST for the VITEK 2 system. The 0.5 McFarland bacterial suspension was diluted to 1.5 x 107 CFU/ml in 0.45% saline. Cards were automatically filled, sealed and loaded into the VITEK 2 instrument for incubation and reading. Gram negative isolates were tested for all antibiotics like Ampicillin, Amoxyclav, Piperacillin / Tazobactam, Ticarcillin, Ceftriaxone, Ceftazidime, Cefixime, Cefepime, Cefaperazone / Sulbactam,

Doripenam, Imipenam, Meropenam, Ertapenam, Amikacin, Gentamycin, Ciprofloxacin, Levofloxacin, Minocycline, Tigecycline, Cotrimoxazole.

Gram positive isolates will be tested for all antibiotics like Penicillin, Oxacillin, Gentamycin, Ciprofloxacin, Levofloxacin, Erythromycin, Clindamycin, Linezolid, Daptomycin, Teicoplanin, Vancomycin, Tetracycline, Streptomycin, Cotrimoxazole, Rifampicin.

Quality control: ATCC strains of *Escherichia coli* 25922, *Pseudomonas aeruginosa* 27853, *Staphylococcus aureus* 25923 were used as qualitycontrols.

INTERPRETATION OF RESULTS:

In order to evaluate MIC results, and zone sizes CLSI 2018 (Clinical & Laboratory Standards Institute) recommendations were used.[26]

CATEGORISATION INTO MDR, XDR, PDR: (Magioraos AP et al)[85]

On the basis of antimicrobial susceptibility testing isolates were chracterised into:-

Multi Drug Resistance (MDR): non susceptible to ≥1 agent in ≥3 antimicrobial categories.

Extensively Drug Resistance (XDR): non susceptible to ≥1 agent in all but ≤ 2 categories.

Pan Drug Resistance (PDR): non susceptible to all antimicrobial agents.

Sceening for ESBL, AmpC and MBL production in Gram negative bacteria.

Media used:

Mueller Hinton Agar:[84]

Composition:

Beef infusion 300ml

Casein 17.5g

Starch 1.5g

Agar 10g

Distilled water 1litre

Preparation: Starch was emulsified in a small amount of cold water. Itwas poured into beef infusion, to which casein hydrolysate and agar

were added. The volume was made upto 1 litre with distilled water. Constituents were dissolved by heating at 100°C with agitation. pH was adjusted to7.4. It was autoclaved at 121°C for 20 minutes and then poured in plates. Screening was done on Mueller Hinton Agar (MHA) plate. The antimicrobials discs used for screening were ceftazidime/ cefotaxime (for ESBL), cefoxitin (for AmpC) and imipenem / ertapenem (for MBL)

SCREENING TEST FOR ESBL, AmpC and METALLO β-LACTAMASES:-

The MHA plate was inoculated using a swab that had been submerged in a bacterial suspension by lawn culture method. The antimicrobial discs used for screening procedure were cefotaxime and ceftazidime (ESBLs), cefoxitin (for AmpC β- lactamase) and imipenem and ertapenem (for MBL). These discs were applied and then the plates were incubated at 35-37˚C for 24 hour. The plates were examined to confirm that a confluent lawn of good growth has been obtained. Then zones of inhibition were measured and compared with the Performance Standards of Antimicrobial Disc Susceptibility Test provided by CLSI.[27]

ENZYME	**ANTIMICROBIAL DISC**	**ZONE SIZE INDICATING RESISTANCE**
ESBLs	Ceftazidime Cefotaxime	≤21mm ≤26mm
AmpC β-lactamase	Cefoxitin	≤14 mm
MBL	**ANTIMICROBIAL DISC**	**Zone size indicating resistance.**
Enterobacteriaceae	Imipenem Ertapenem	≤19 mm ≤18 mm
Pseudomonas sp	Imipenem	≤15mm
Acinetobacter spp	Imipenem	≤18 mm

CONFIRMATORY TEST FOR ESBL PRODUCTION:

DOUBLE DISC DIFFUSION TEST[84]

It was done using Mueller Hinton Agar plates. The test organisms were inoculated on MHA plates. The discs applied were – ceftazidime (30ug) and ceftazidime in combination with clavulanic acid (10ug). The discs were placed in such a way that centre to centre distance between the discs was minimum 30 mm. The MHA plates were incubated at 35°C for 24 hours as per CLSI guidelines.

Interpretation: An expansion zone of ≥5 mm around the combination disc considered as positive result.

CONFIRMATORY TEST FOR AmpC ß- LACTAMASE PRODUCTION:[86]

AmpC disc test

A lawn culture of *E.coli* ATCC 25922 was prepared on MHA plate and acefoxitin disc (30ug) was placed on the plate. AmpC disc was moistened with sterile saline and inoculated with colonies of the test organism. The disc was then placed beside the cefoxitin disc (almost touching) with inoculated side facing downwards. The MHA plate was incubated for 24 hours at 35°C.

Interpretation: If there was a flattening or indentation of cefoxitin inhibition zone, it was considered as AmpC producer.

CONFIRMATORY TEST FOR METALLO BETALACTAMASES:

Imipenem – EDTA double disc synergy test[87]

The test organisms were inoculated on MHA plates. The discs used were imipenem disc (10ug) and imipenem EDTA discs which were prepared by adding EDTA solution to the imipenem disc. The discs were placed in such a way that centre to centre distance between the discs was minimum 30 mm. The MHA plates were incubated at 35°C for 24 hours as per CLSI guidelines.

Interpretation: An expansion zone of ≥ 7 mm around the combination disc considered as positive result.

Test for detection of Methicillin resistant *Staphylococcus aureus* (MRSA):[84]

Cefoxitin disc diffusion was performed on *Staphylococcus aureus*

isolate for determining methicillin resistance using a 30 ug disc. A 0.5 McFarland standard suspension of the isolate was done on MHA plate. Cefoxitin disc was applied and plates were incubated at 37°C for 24 hours. Zone diameter were measured and interpreted as follows:

	RESISTANT (zone size in mm)	SENSITIVE (zone size in mm)
Staphylococcus aureus	≤ 21	≥ 22

Test for detection of Vancomycin resistant *Enterococci*(VRE)*:* [84]

Vancomycin resistance in *Enterococci* isolates was determined by preparing agar plates containing 6ug of vancomycin per ml with Brainheart infusion media. A 0.5 McFarland suspension of the *Enterococcal* isolates was prepared.1ul of the suspension was spotted on the surface ofthe agar. The plates were then incubated for 18-24 hours at 35°C.

Interpretation: Presence of growth indicated resistance to vancomycin.

Statistical analysis: Data were described in terms of range; mean ±standard deviation (± SD), median, frequencies (number of cases) and relative frequencies (Percentages) as appropriate. For comparing categorical data, Chi square ($\chi 2$) test was performed and exact test was used when the expected frequency is less than 5. A probability value (*p* value) less than 0.05 was considered statistically significant. All statistical calculations were done using SPSS (Statistical Package for the Social Science) SPSS 21 version statistical program for Microsoft Windows.

OBSERVATIONS AND RESULTS

This was a prospective study conducted over a period of one year (1st Jan 2019 - 31st Dec 2019) in the Department of Microbiology, DMCH, Ludhiana.

During this period, a total of 882 patients suspected with wound infections admitted in DMC Hospital were enrolled in the study. Various samples collected from various wards and ICUs were processed in the Microbiology laboratory. The bacterial isolates obtained from samples were identified and antimicrobial susceptibility pattern was determined by VITEK-2 system. The isolates were then characterised into multi drug resistant (MDR), extensively drug resistant (XDR) and pan drug resistant (PDR). Percentage of Extended spectrum β lactamases (ESBL), Amp C β lactamases (Amp C) and Metallo β lactamases (MBL) production among Gram negative isolates and methicillin resistance *Staphylococcus aureus* and vancomycin resistant *Enterococci* were noted. Out of 882 patients, 267 patients were culture positive and a total of 285 various Gram negative and Gram positive isolates were obtained.

All the results are depicted in the tables and graphs that follow:

TABLE 1: AGE WISE DISTRIBUTION OF PATIENTS. (n=882)

Age group	No. of cases	Percentage
< 20	68	7.7%
21-30	92	10.4%
31-40	117	13.3%
41-50	168	19.0%
51-60	225	25.5%
61-70	155	17.6%
71-80	52	5.9%
> 80	5	0.6%
Total	882	100.0%

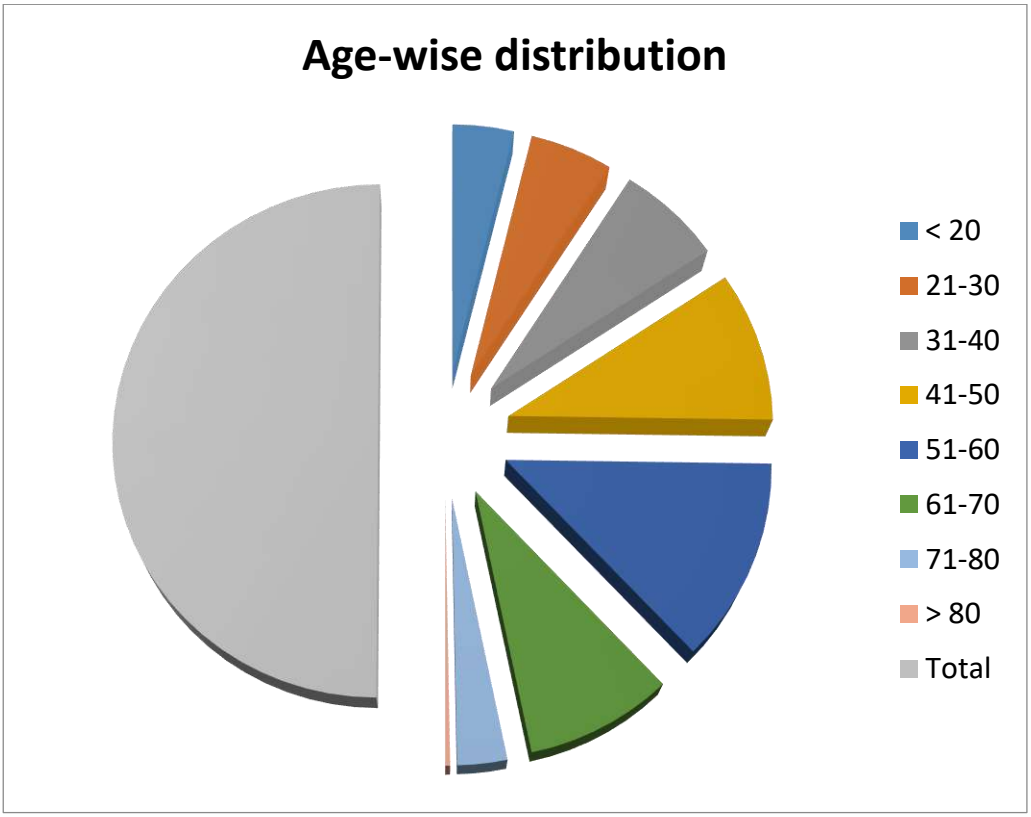


FIGURE 1: AGE WISE DISTRIBUTION OF PATIENTS. (n=882)

Majority of patients were in the age group of 51-60 years (25.5%), whereas minimum patients were in the age group of >80 years (0.6%). Mean is 54.61 and standard Deviation is 16.71.

TABLE 2: SEX WISE DISTRIBUTION OF PATIENTS. (n=882)

SEX	No. of cases	Percentage
M	573	65.0%
F	309	35.0%
Total	882	100.0%

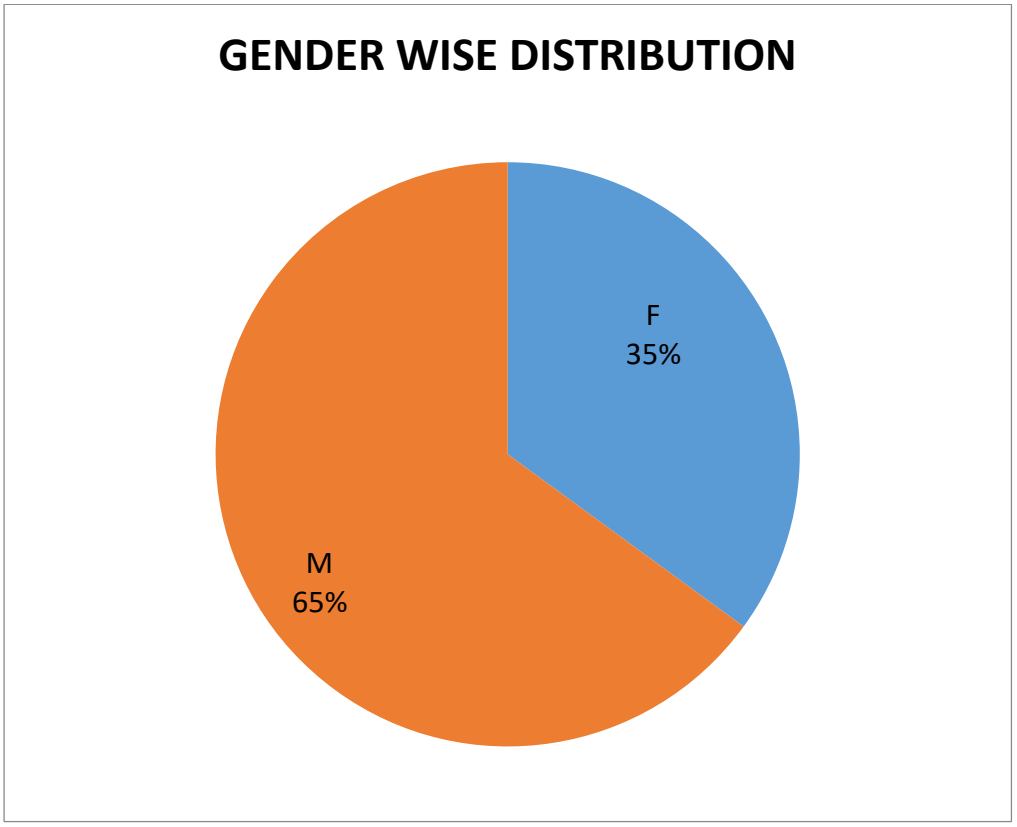


FIGURE 2: SEX WISE DISTRIBUTION OF PATIENTS. (n=882)

Majority of patients were males (65%) as compared to females (35%).

TABLE 3: AREA WISE DISTRIBUTION OF PATIENTS. (n=882)

LOCATION	No. of cases	Percentage
ICU	430	48.8%
Medical Wards	214	24.3%
Surgical Wards	238	27.0%

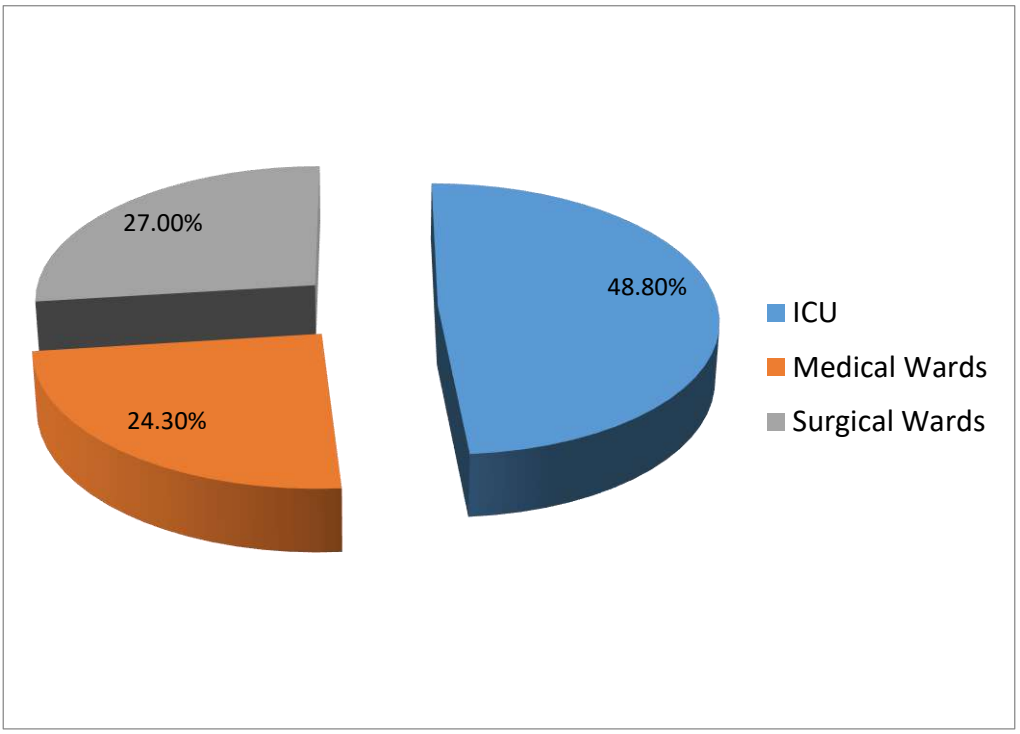


FIGURE 3: AREA WISE DISTRIBUTION OF PATIENTS. (n=882)

Majority of patients were from ICUs (48.8%), followed by Medical wards (27%) and Surgical Wards (24.3%).

TABLE 4: DISTRIBUTION OF CLINICAL SAMPLES. (n=882)

SAMPLE	No. of cases	Percentage
WOUND SWABS	380	43.08%
PUS	340	38.54%
TISSUE	162	18.36%
Total	882	100.0%

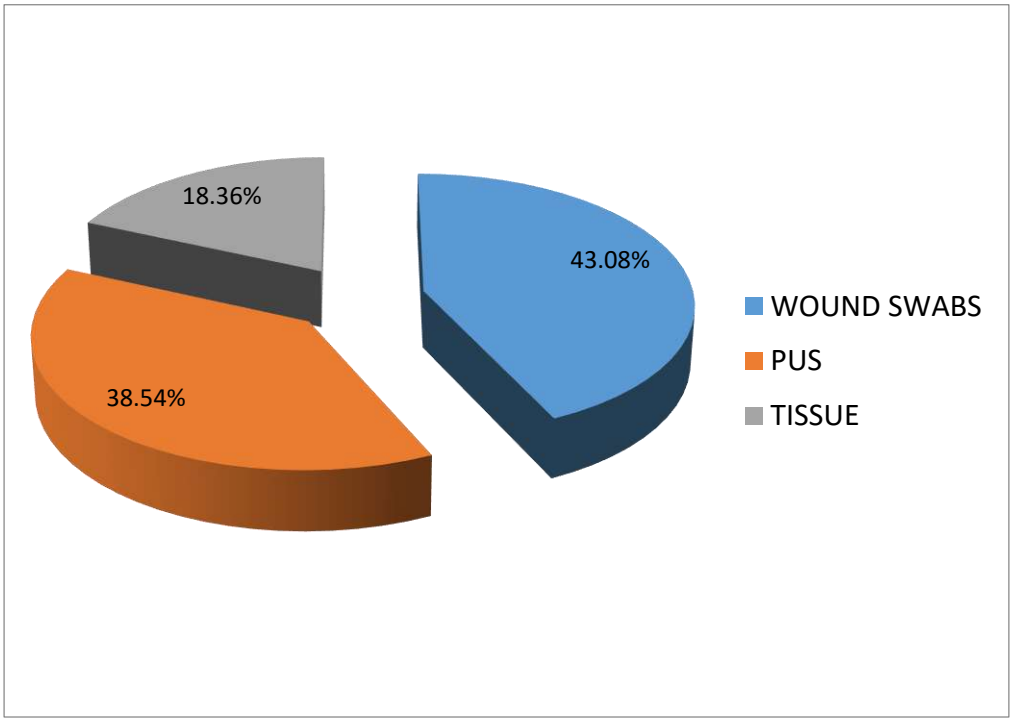


FIGURE 4: DISTRIBUTION OF CLINICAL SAMPLES (n=882)

Maximum numbers of samples were wound swabs (43.08%), followed by pus (38.54%) and tissue (18.36%).

Out of 882 patients 267 patients were culture positive. Overall wound infection rate was 30.27%.

TABLE 5: AGE WISE DISTRIBUTION OF CULTURE PROVEN PATIENTS. (n=267)

Age group	No. of cases	Percentage
< 20	08	2.99%
21-30	33	12.35%
31-40	43	16.10%
41-50	43	16.10%
51-60	59	22.09%
61-70	60	22.47%
71-80	18	6.74%
> 80	03	1.12%
Total	267	100.0%

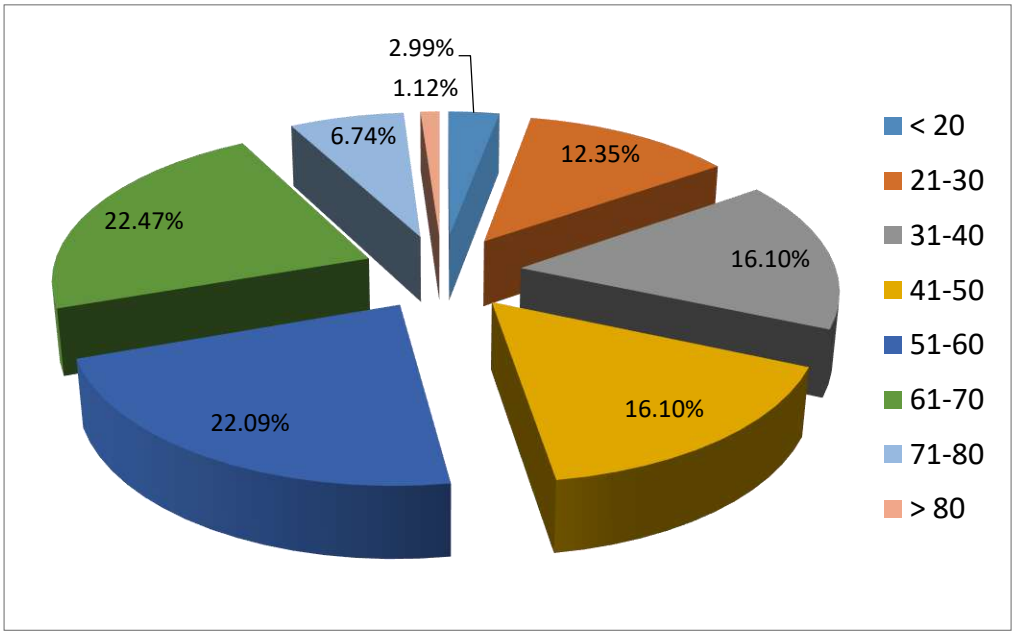


FIGURE 5: AGE WISE DISTRIBUTION OF CULTURE POSITIVE PATIENTS. (n=267)

TABLE 6: SEX WISE DISTRIBUTION OF CULTURE POSITIVE PATIENTS. (n=267)

SEX	No. of cases	Percentage
M	183	68.53%
F	84	31.46%
Total	267	100.0%

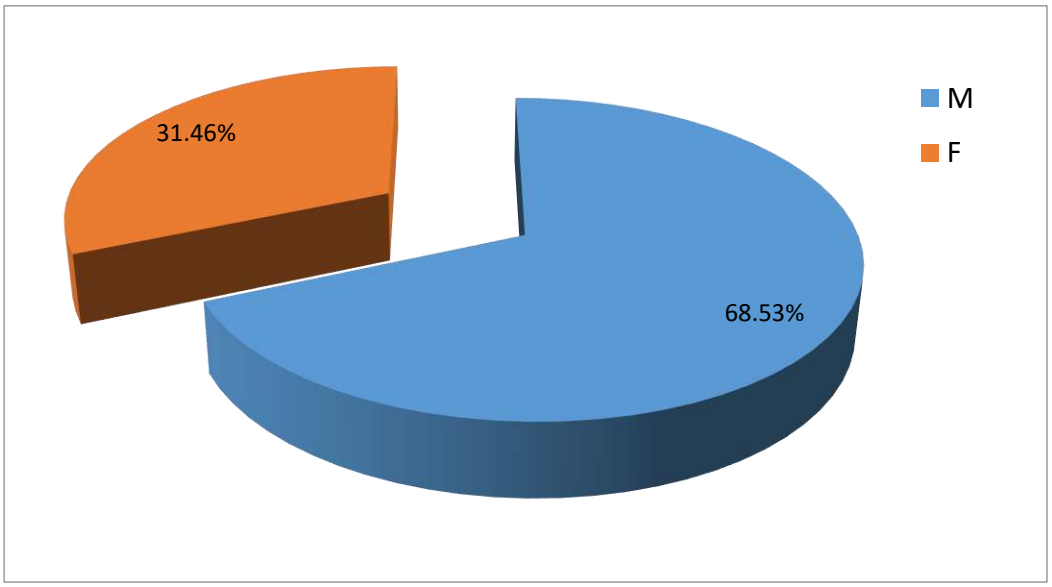


FIGURE 6: SEX WISE DISTRIBUTION OF PATIENTS. (n=267)

TABLE 7: AREA WISE DISTRIBUTION OFCULTURE POSITIVE PATIENTS. (n=267)

LOCATION	No. of cases	Percentage
ICU	08	2.99%
Medical Wards	47	17.60%
Surgical Wards	212	79.40%

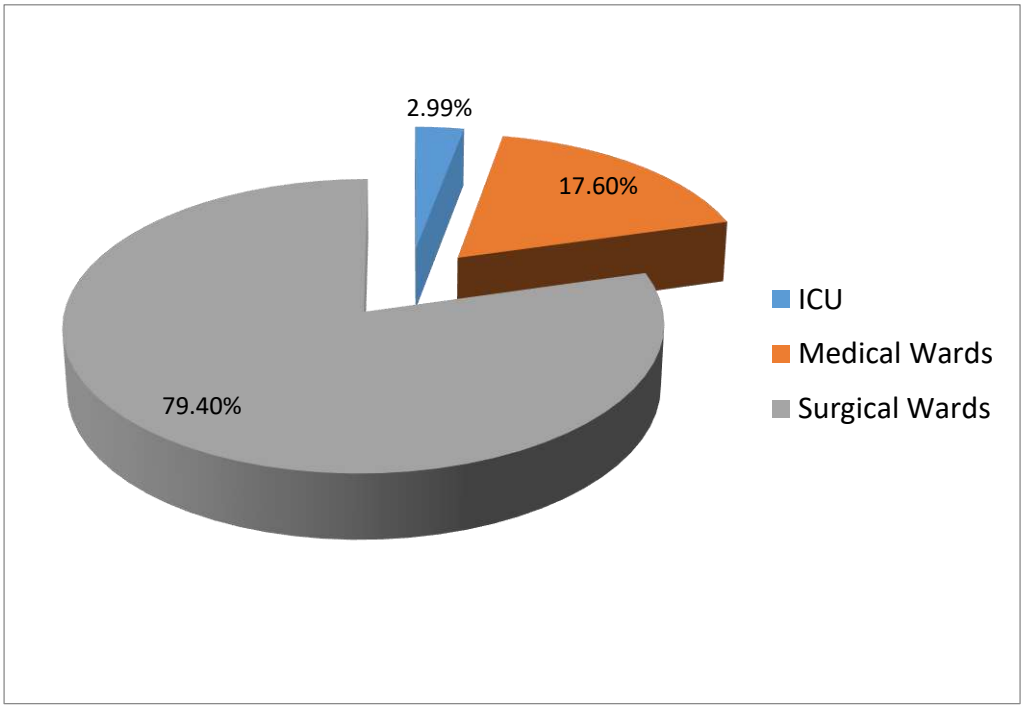


FIGURE 7: AREA WISE DISTRIBUTION OF PATIENTS. (n=267)

TABLE 8: RISK FACTORS ASSOCIATED WITH WOUND INFECTIONS. (n=267)

RISK FACTOR	NUMBER OF PATIENTS	PERCENTAGE
DIABETES	55	20.59%
SEPSIS	30	11.23%
OBESITY	28	10.48%
IMMUNOSUPPRESSION	27	10.11%
VASCULAR DISEASE	25	9.36%
IMMOBILIZATION	24	8.98%
SMOKING	12	4.49%
AGEING	11	4.11%
EDEMA	10	3.74%
CONCURRENT INFECTION AT ANOTHER SITE	10	3.74%
HOSPITAL STAY	4	1.49%
CHRONIC VENOUS INSUFFICIENCY	02	0.7%
OTHERS	29	10.86%
TOTAL	267	

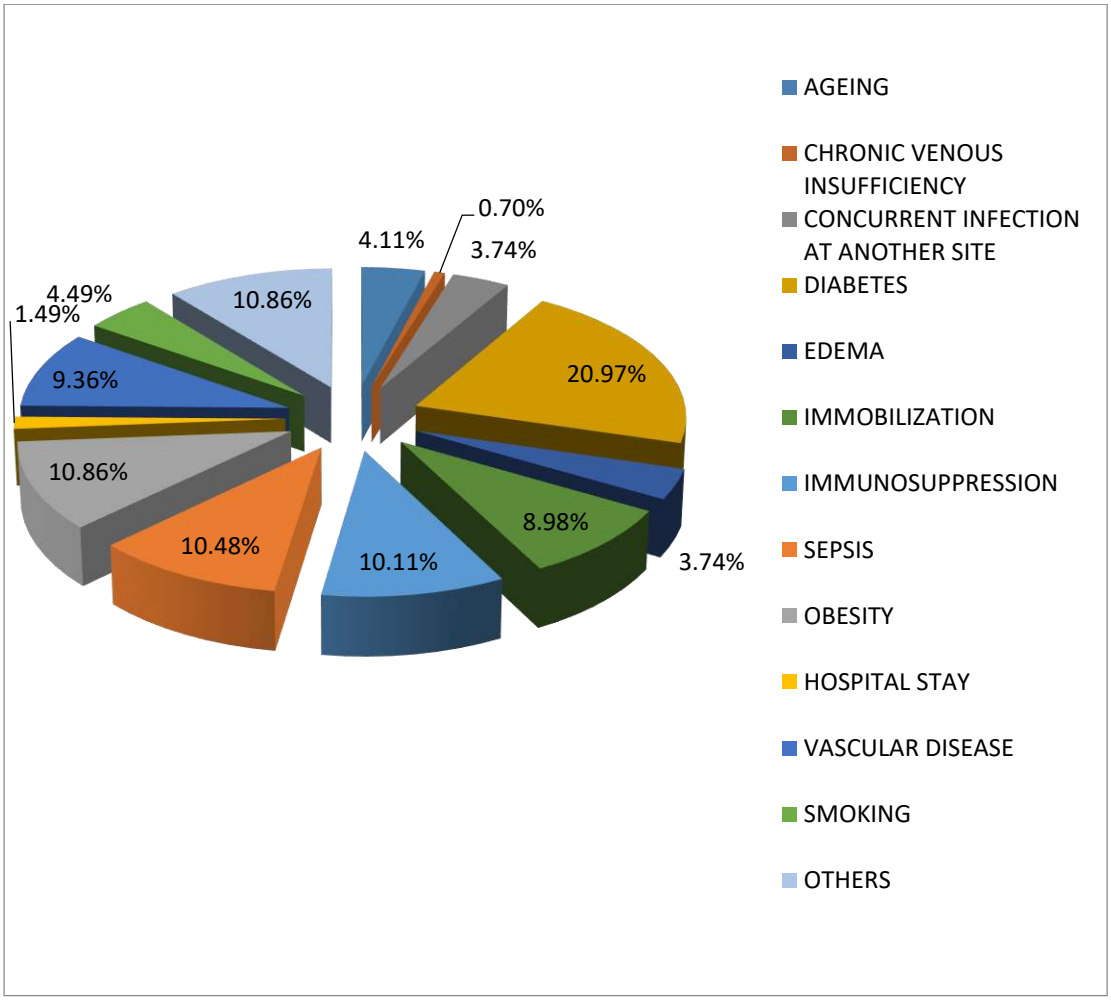


FIGURE 8: RISK FACTORS ASSOCIATED WITH WOUND INFECTIONS

TABLE 9: CHARACTERISATION OF WOUNDS OF PATIENTS. (n=267)

Type of wound	Number	Percentage
Post-operative	125	46.81%
Diabetic ulcers	55	20.59%
Abscess	35	13.10%
Traumatic wounds	31	11.61%
Leg ulcers	15	5.67%
Burns	5	1.87%
Decubitus ulcers	1	0.30%
	267	

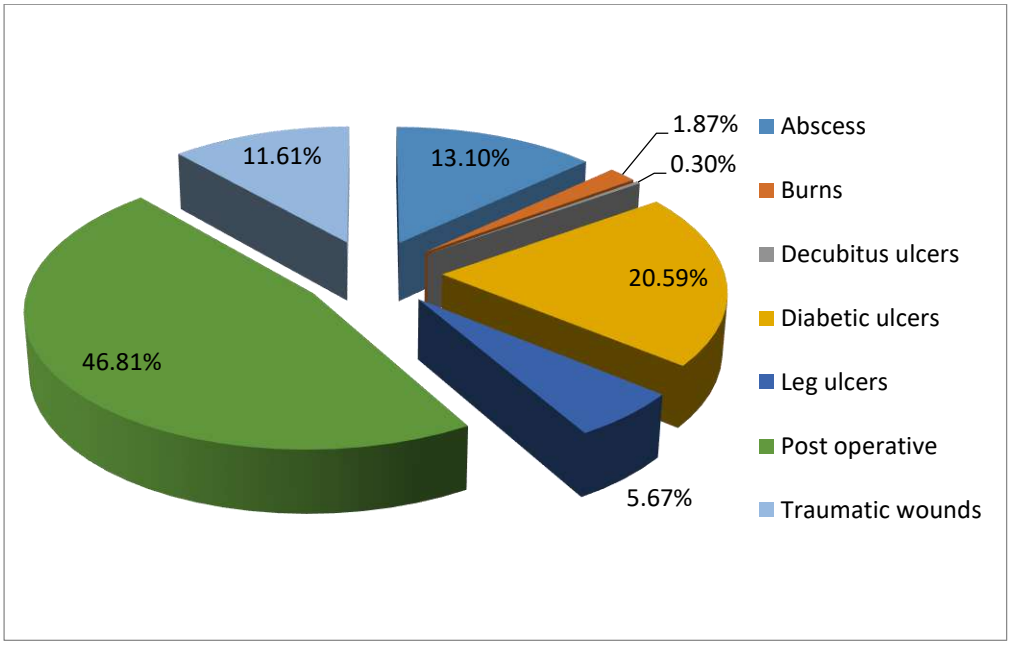


FIGURE 9: CHARACTERISATION OFWOUNDS OF PATIENTS.

TABLE 10: CHARACTERISATION OF POST OPERATIVE WOUNDS. (n=125)

WOUND CLASS	NUMBER OF PATIENTS	PERCENTAGE
Clean	21	16.8%
Clean contaminated	29	23.2%
Contaminated	58	46.4%
Dirty/ infected	17	13.6%
TOTAL	125	

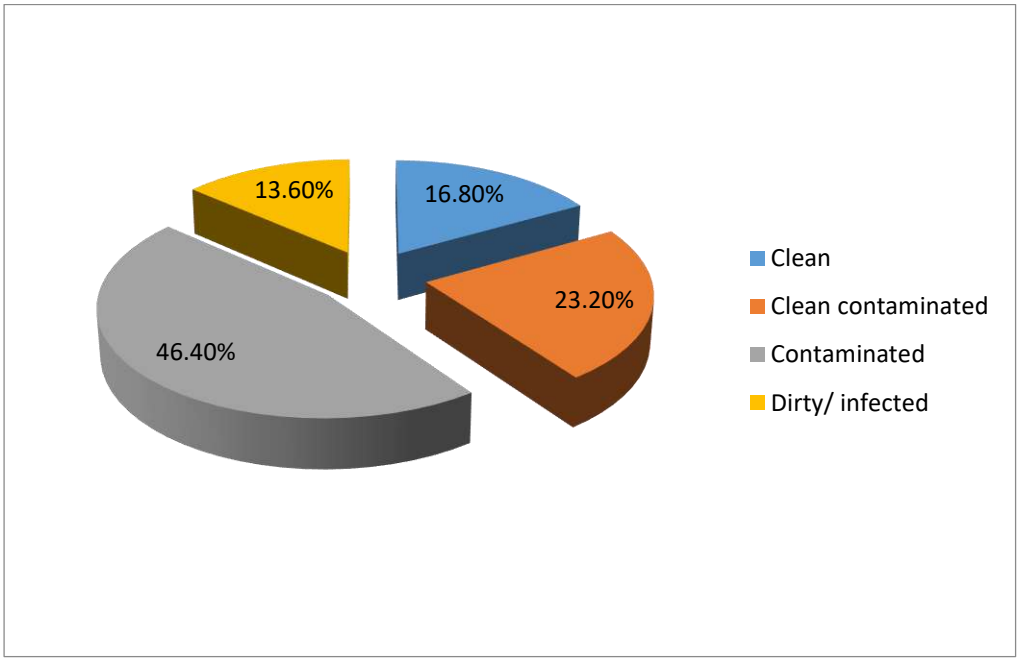


FIGURE 10: CHARACTERISATION OF POST OPERATIVE WOUNDS OF PATIENTS

TABLE 11: DISTRIBUTION OF CLEAN SURGERIES. (n=21)

CLEAN	
Modified Radical Masectomy	5
Coronary Artery Bypass Surgery	2
Hernia repair	4
Cranioplasty	3
Decompressive craniotomy	2
Cervical exploration B/L	1
Hemiarthroplasty	1
Laproscopic Adhesiolysis	1
Splenectomy	1
Total	21

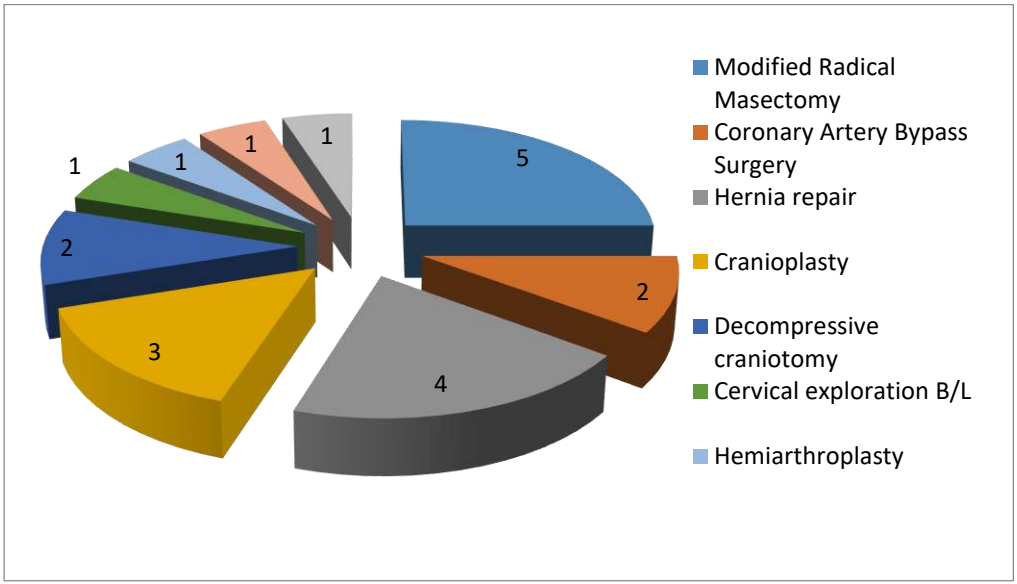


FIGURE 11: DISTRIBUTION OF CLEAN SURGERIES

TABLE 12: DISTRIBUTION OF CLEAN CONTAMINATED SURGERIES. (n=29)

CLEAN CONTAMINATED	
Appendicectomy	9
Total abdominal hysterectomy	3
Liver transplant	2
LSCS (Lower Section Ceserean Section)	2
Stoma closure	1
D J Stenting	1
Liver Resection	1
Cystectomy with mass excision	1
Tibia plating and fixation	1
USG guided cathetar drainage	1
Prostatectomy	1
Cervical vertebectomy and decompressive fixation with DM2	1
TENS (Transcutaneous electrical nerve stimulation)	1
Laryngectomy	1
Laporatomy with resection anastomosis	1
SSG (Split Skin Grafting)	1
VATS (Video assisted thoracoscopic surgery)	1
Total	29

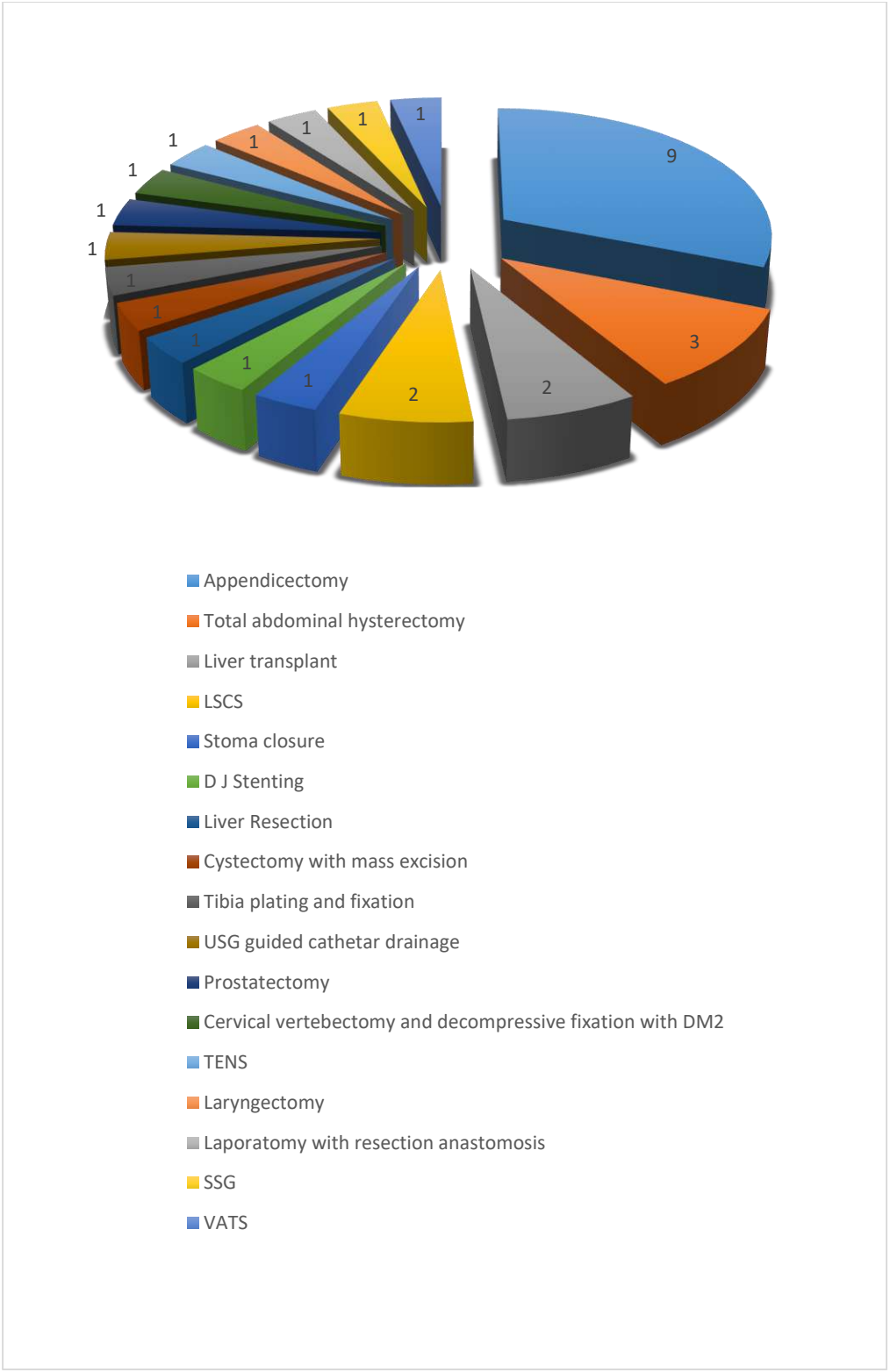


FIGURE 12: DISTRIBUTION OF CLEAN CONTAMINATED SURGERIES.

TABLE 13: DISTRIBUTION OF CONTAMINATED SURGERIES. (n=58)

CONTAMINATED	
Cholecyctectomy	15
Exploratory laprotomy	13
Hemicolectomy	7
Fistulectomy	5
Pancreatic necrosectomy	5
Flapping	2
Implant removal	2
Lower section cesarean section	2
Choledochotomy	1
External fixation	1
Fasciotomy	1
Gastrojejunostomy	1
Hepatojejunostomy	1
Ileostomy	1
Tympanoplasty with mastoidectomy	1
Total	58

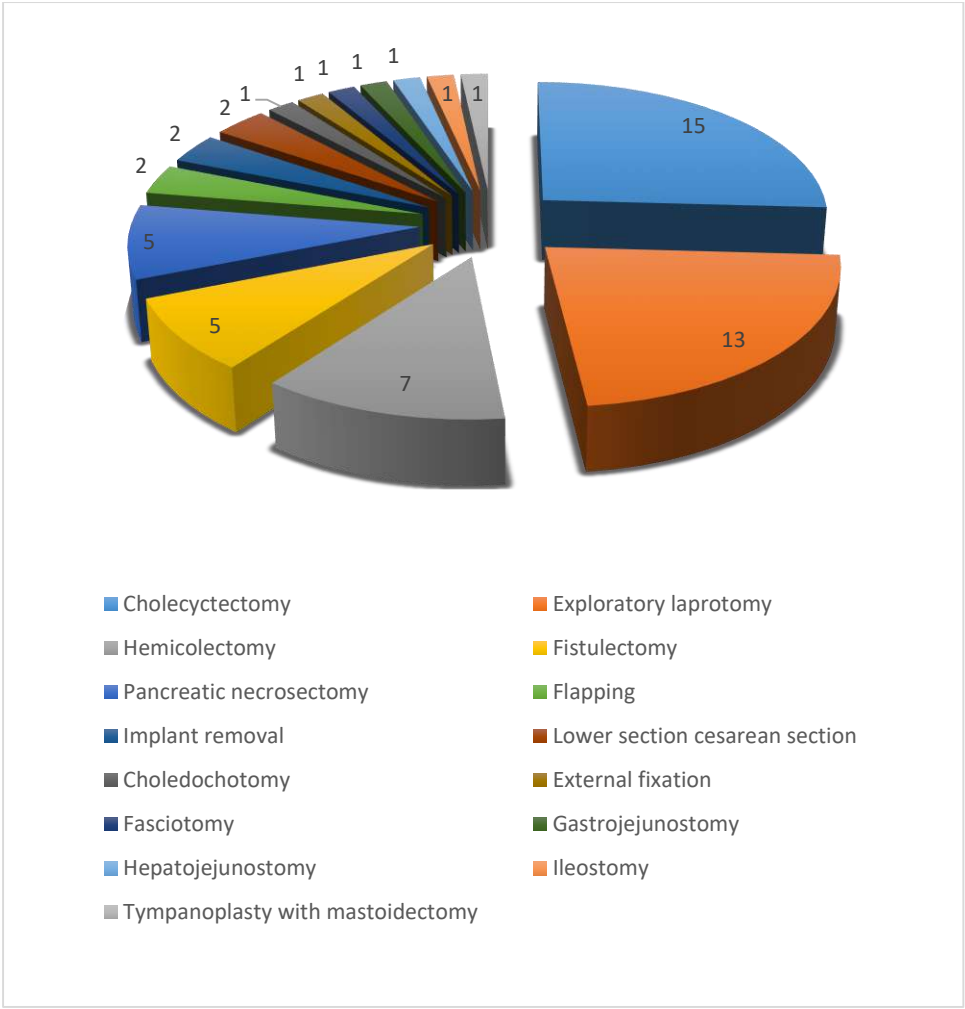


FIGURE 13: DISTRIBUTION OF CONTAMINATED SURGERIES.

TABLE 14: DISTRIBUTION OF DIRTY INFECTED SURGERIES. (n=17)

DIRTY INFECTED	
Exploratory laprotomy	8
Pancreatic necrosectomy	3
Incision & Drainage	1
Debridement	1
REEA (Resection & end to end anastomosis)	1
Amputation	1
Small pseudocyst pancreas.	1
Pancreatectomy	1
Total	17

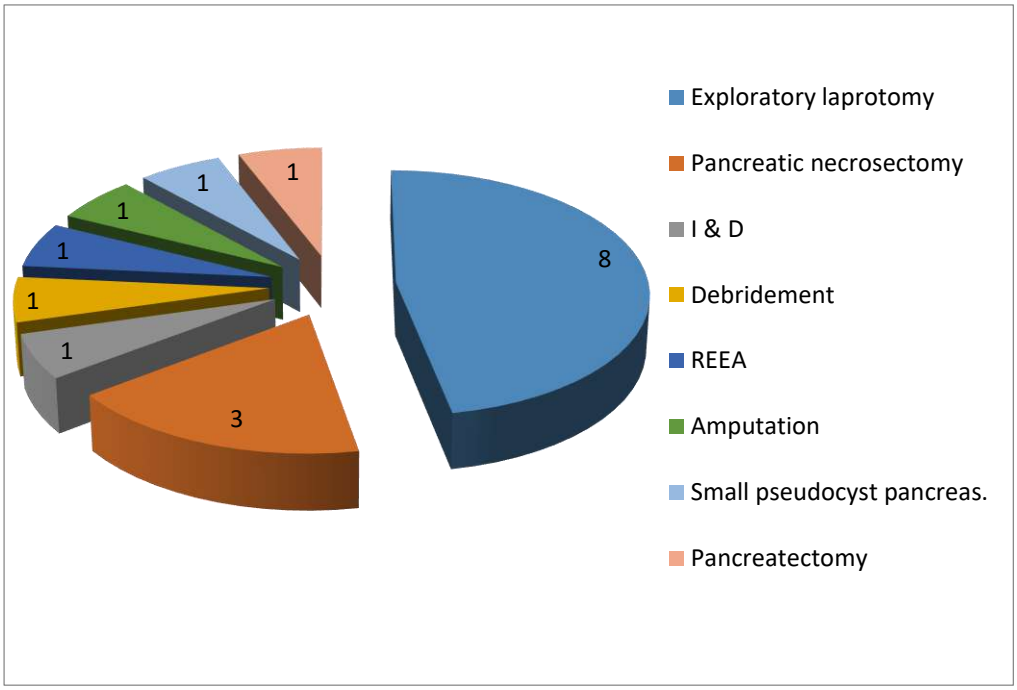


FIGURE 14: DISTRIBUTION OF DIRTY INFECTED SURGERIES.

MONOMICROBIAL VS POLYMICROBIAL

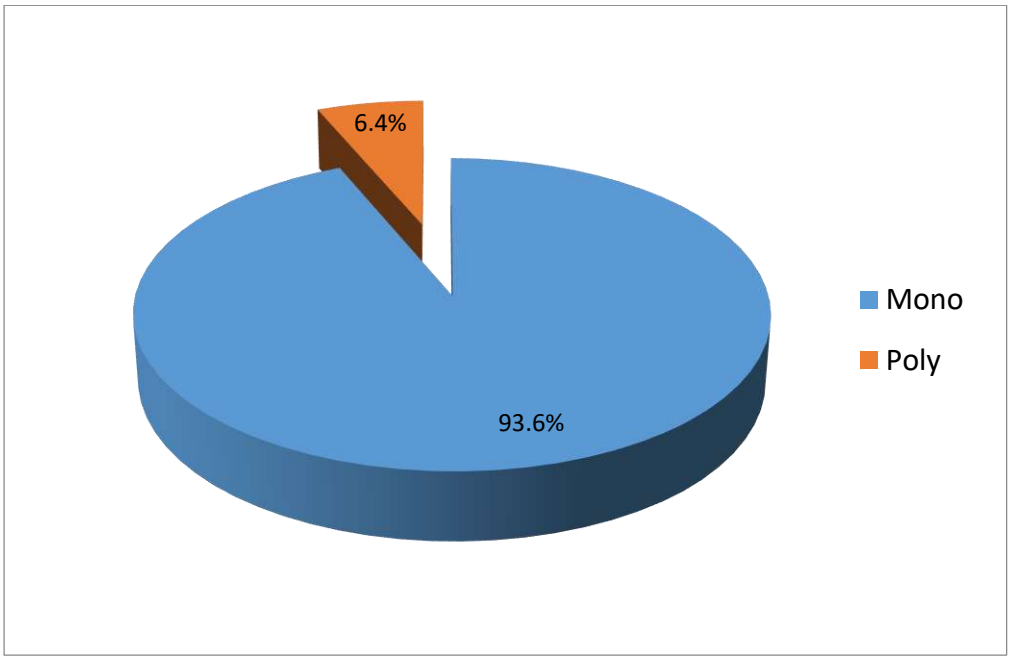


FIGURE 15: MONOMICROBIAL VS POLYMICROBIAL

Out of 882 samples, monomicrobial growth was seen in 250 (93.65%) samples and polymicrobial growth in 17 (6.36%) samples respectively. In Polymicrobial growths there were 2 organisms each, thus in total 285 isolates were obtained.

TABLE 15: DISTRIBUTION OF ISOLATES.

TYPE OF ISOLATES	No. of samples	Percentage
GRAM NEGATIVE ISOLATES	237	83.2%
GRAM POSITIVE ISOLATES	48	16.8%

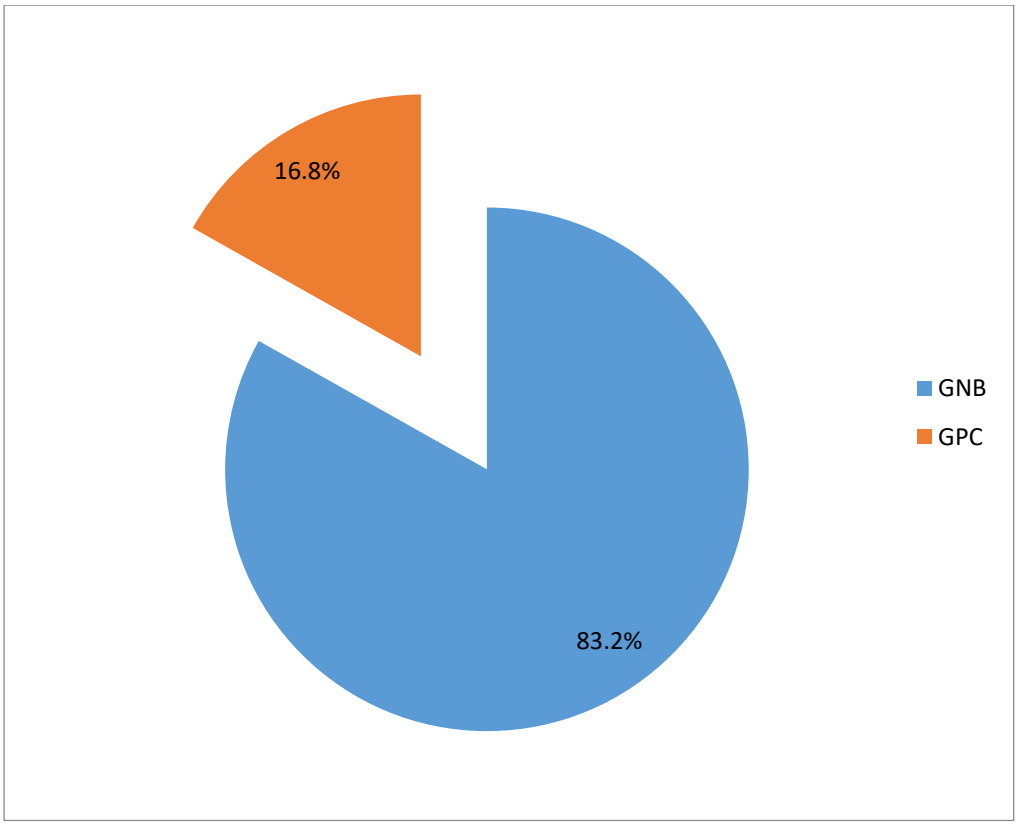


FIGURE 16: DISTRIBUTION OF ISOLATES.

Gram negative isolates were obtained in 83.2% of the isolates and Gram positive isolates were found to be 16.8%.

TABLE 16: DISTRIBUTION OF ORGANISMS ISOLATED.

ISOLATES	Number	Percentage
GRAM NEGATIVE ISOLATES (n=237)		
Escherichia coli	90	31.6%
Klebsiella pneumoniae	49	17.2%
Pseudomonas aeruginosa	38	13.3%
Acinetobacter baumanii	33	11.6%
Enterobacter cloacae	6	2.1%
Proteus mirabilis	6	2.1%
Serratia marcescens	4	1.4%
Enterobacter aerogenes	2	0.7%
Morganella morganii	2	0.7%
Acinetobacter lwoffii	1	0.4%
Citrobacter freundii	1	0.4%
Elizabeth meningoseptica	1	0.4%
Klebsiella oxytoca	1	0.4%
Proteus vulgaris	1	0.4%
Providentia stuarti	1	0.4%
Pseudomonas mendocina	1	0.4%
GRAM POSITIVE ISOLATES (n=48)		
Staphylococcus aureus	41	14.4%
Enterococcus faecalis	3	1.1%
Enterococcus faecium	2	0.7%
Streptococcus agalactiae	1	0.4%
Enterococcus avium	1	0.4%
Total	285	100.0%

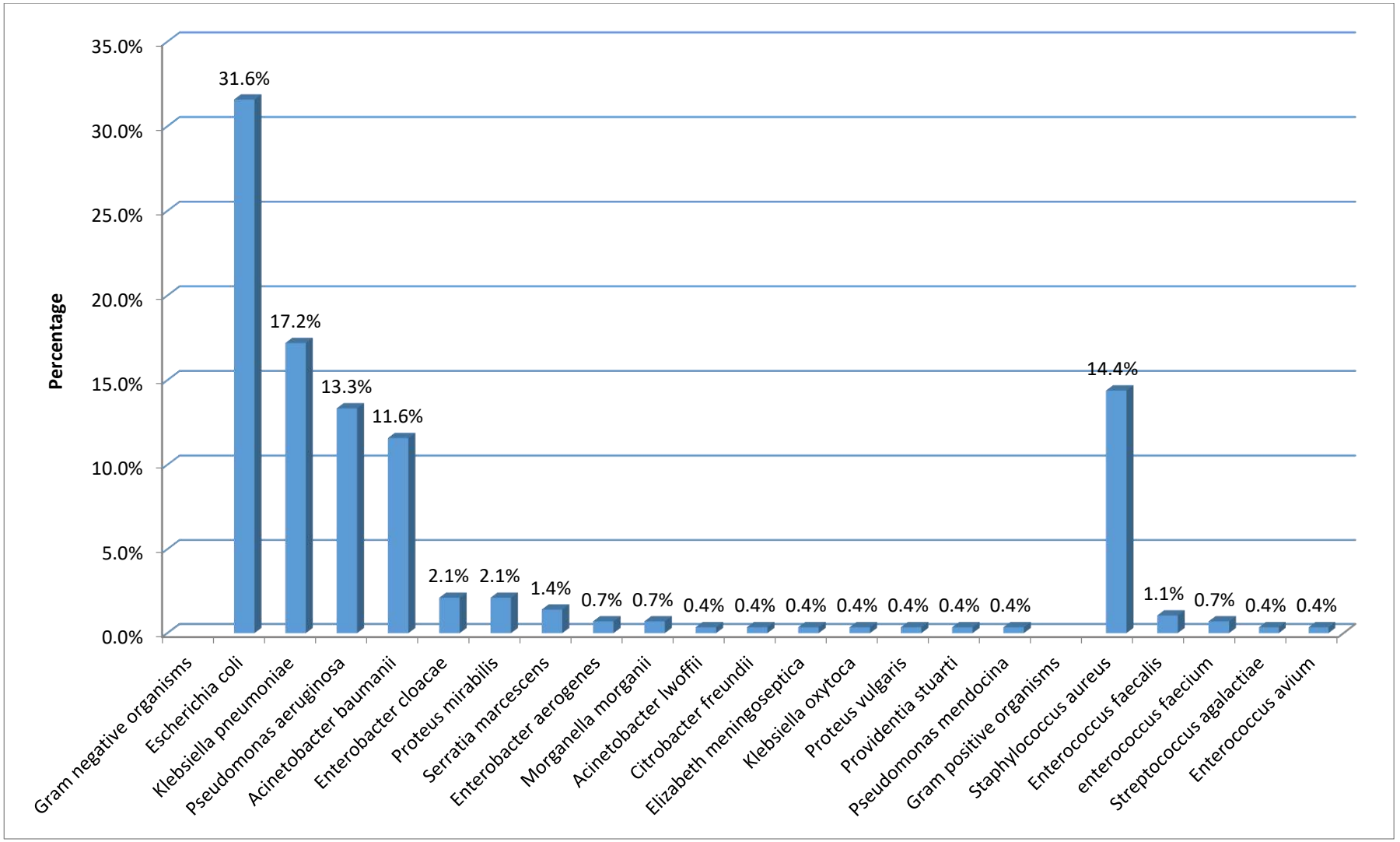


FIGURE 17: DISTRIBUTION OF ORGANISMS ISOLATED.

TABLE 17: DISTRIBUTION OF ORGANISMS IN WOUNDS. (n=267)

ORGANISM	WOUND TYPE							Total
	Post op	Diabetic ulcer	Abscess	Traumatic wound	Leg ulcer	Burns	Decubitus ulcer	
GRAM NEGATIVE ISOLATES								
Escherichia coli	48	12	20	4	2	2	0	88
Klebsiella pneumoniae	26	7	3	4	3	2	1	46
Pseudomonas aeruginosa	11	14	0	8	1	0	0	34
Acinetobacter baumanii	12	6	2	8	3	1	0	32
Enterobacter cloacae	2	1	0	1	1	0	0	5
Proteus mirabilis	0	4	0	0	0	0	0	4
Serratia marcescens	1	2	0	0	1	0	0	4
Enterobacter aerogenes	0	0	2	0	0	0	0	2
Acinetobacter lwoffii	1	0	0	0	0	0	0	1
Citrobacter freundii	1	0	0	0	0	0	0	1
Elizabeth meningoseptica	1	0	0	0	0	0	0	1
Klebsiella oxytoca	0	1	0	0	0	0	0	1
Morganella morganii	1	0	0	0	0	0	0	1
Proteus vulgaris	1	0	0	0	0	0	0	1
Pseudomonas mendocina	0	0	0	1	0	0	0	1
GRAM POSITIVE ISOLATES								
Staphylococcus aureus	17	6	7	5	4	0	0	39
Enterococcus faecalis	1	2	0	0	0	0	0	3
Enterococcus faecium	1	0	0	0	0	0	0	1
Enterococcus avium	1	0	0	0	0	0	0	1
Streptococcus agalactiae	0	0	1	0	0	0	0	1
Total	125	55	35	31	15	5	1	267

TABLE 18: DISTRIBUTION OF ORGANISMS IN POST OPERATIVE WOUNDS. (n=125)

ORGANISMS	TYPE OF WOUND				Total
	Clean	Clean contaminated	Contaminated	Dirty	
GRAM NEGATIVE					
Escherichia coli	5	13	25	5	48
Klebsiella pneumoniae	3	5	12	6	26
Acinetobacter baumanii	3	2	5	2	12
Pseudomonas aeruginosa	2	3	5	1	11
Enterobacter cloacae	0	1	1	0	2
Acinetobacter lwoffii	0	0	1	0	1
Citrobacter freundii	0	0	1	0	1
Elizabeth meningoseptica	1	0	0	0	1
Morganella morganii	0	0	0	1	1
Proteus vulgaris	0	0	1	0	1
Serratia marcescens	0	0	0	1	1
GRAM POSITIVE					
Staphylococcus aureus	7	3	6	1	17
Enterococcus avium	0	1	0	0	1
Enterococcus faecalis	0	1	0	0	1
Enterococcus faecIum	0	0	1	0	1
Total	21	29	58	17	125

TABLE 19: ANTIMICROBIAL RESISTANCE PROFILE OF GRAM NEGATIVE ORGANISMS.

ORGANISMS (n=237)	AK	GEN	CIP	LEVO	MIN	COT	AMP	TIC	CI
Escherichia coli (90)	18(20)	38(42.22)	80(88.88)	78(86.66)	69(76.66)	52(57.77)	86(95.55)	75(83.33)	78(86.66)
Klebsiella pneumoniae (49)	32(65.3)	35(71.42)	42(85.71)	43(87.75)	42(85.71)	35(71.42)	-	-	46(93.87)
Pseudomonas aeruginosa (38)	14(36.84)	14(36.84)	24(63.15)	24(63.15)	31(81.57)	-	-	24(63.15)	-
Acinetobacter baumanii (33)	25(75.75)	29(87.87)	33(100)	28(84.84)	16(48.48)	26(78.78)	26 (78.7)	31(93.93)	31(93.33)
Proteus mirabilis (6)	1(16.66)	2(33.33)	5(83.33)	5(83.33)	6(100)	6(100)	6(100)	4(66.66)	6(100)
Enterobacter cloacae (6)	3(50)	4(66.66)	4(66.67)	5(83.33)	5(83.33)	4(66.66)	-	6(100)	5(83.33)
Serratia marcescens (4)	0(0)	0(0)	1(25)	1(25)	1(25)	2(50)	2(50)	1(25)	2(50)
Morganella morganii (2)	0(0)	0(0)	2(100)	2(100)	2(100)	1(50)	1(50)	1(50)	1(50)
Enterobacter aerogenes (2)	2(100)	2(100)	2(100)	2(100)	0(0)	1(50)	2(100)	2(100)	2(100)
Acinetobacter lwoffii (1)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	1(100)	0(0)	1(100)
Citrobacter freundii (1)	0(0)	1(100)	1(100)	1(100)	1(100)	0(0)	1(100)	1(100)	0(0)
Elizabeth meningoseptica (1)	1(100)	1(100)	0(0)	0(0)	0(0)	1(100)	1(100)	1(100)	1(100)
Klebsiella oxytoca(1)	0(0)	0(0)	0(0)	1(100)	1(100)	0(0)	1(100)	-	0(0)
Proteus vulgaris (1)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	1(100)	0(0)	0(0)
Providentia stuarti (1)	1(100)	1(100)	1(100)	1(100)	1(100)	1(100)	1(100)	0(0)	1(100)
Pseudomonas mendocina (1)	0(0)	0(0)	0(0)	0(0)	0(0)	-	-	0(0)	1(100)

ORGANISM (n)	CAZ	CPM	IMP	MER	ERT	DOR	AMC	CSL	TZP	TG
Escherichia coli (90)	77(85.55)	61(67.77)	22(24.44)	30(33.33)	47(52.22)	64(71.11)	66(73.33)	37(41.11)	50(55.55)	8(8.88)
Klebsiella pneumoniae (49)	45(91.83)	40(81.63)	34(69.38)	40(81.63)	40(81.63)	43(87.75)	40(81.63)	37(75.51)	39(79.59)	36(73.46)
Pseudomonas aeruginosa (38)	16(42.1)	15(39.47)	17(44.73)	13(34.21)	-	18(47.36)	30(78.94)	15(39.47)	18(47.36)	-
Acinetobacter baumanii (33)	30(90.9)	29(87.87)	29(87.87)	30(90.9)	-	30(90.9)	26(78.78)	17(51.51)	30(90.9)	6(18.18)
Proteus mirabilis (6)	4(66.66)	3(50)	3(50)	2(33.33)	4(66.66)	5(83.33)	6(100)	2(33.33)	3(50)	6(100)
Enterobacter cloacae (6)	5(83.33)	5(83.33)	5(83.33)	4(66.66)	5(83.33)	5(83.33)	-	5(83.33)	5(83.33)	4(66.66)
Serratia marcescens (4)	2(50)	2(50)	1(25)	1(25)	2(50)	1(25)	2(50)	2(50)	2(50)	1(25)
Morganella morganii (2)	0(0)	0(0)	2(100)	0(0)	1(50)	1(50)	1(50)	1(50)	1(50)	1(50)
Enterobacter aerogenes (2)	2(100)	2(100)	2(100)	2(100)	2(100)	2(100)	2(100)	2(100)	2(100)	2(100)
Acinetobacter lwoffii (1)	0(0)	0(0)	0(0)	1(100)	-	0(0)	1(0)	0(0)	1(100)	0(0)
Citrobacter freundii (1)	0(0)	0(0)	1(100)	1(100)	1(100)	0(0)	1(100)	0(0)	0(0)	0(0)
Elizabeth meningoseptica (1)	1(100)	1(100)	1(100)	1(100)	1(100)	1(100)	1(100)	0(0)	1(100)	1(100)
Klebsiella oxytoca(1)	1(100)	0(0)	0(0)	0(0)	0(0)	1(100)	0	0(0)	0(0)	0(0)
Proteus vulgaris (1)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
Providentia stuarti (1)	1(100)	1(100)	1(100)	1(100)	1(100)	1(100)	1(100)	1(100)	1(100)	1(100)
Pseudomonas mendocina (1)	0(0)	0(0)	0(0)	0(0)	-	1(100)	1(100)	0(0)	0(0)	-

TABLE 20: ANTIMICROBIAL RESISTANCE PROFILE OF GRAM POSITIVE ORGANISMS.

ORGANISMS (n=48)	PEN	OXA	CX	ERY	COT	CIP	GEN	LEVO	TET	RIF	CLI	LZ	DPT	VAN	TEC
Staphylococcus aureus (n=41)	34 (89.92)	23 (56.09)	22 (53.65)	20 (48.79)	14 (34.1)	12 (29.26)	21 (51.21)	28 (68.29)	8 (19.51)	6 (14.63)	14 (34.14)	3 (7.31)	3 (7.31)	0	3 (7.31)
Enterococcus faecalis (n=3)	0	0	0	1 (33.33)	-	1 (33.33)	1 (33.33)	0	3 (100)	2 (66.66)	0	0	0	0	0
Enterococcus faecium (n=2)	2 (100)	0	2 (100)	0	-	1 (50)	1 (33.33)	0	1 (50)	1 (50)	0	1 (50)	1 (50)	0	0
Enterococcus avium (n=1)	1 (100)	0	0	0	-	0	0	0	1 (100)	0	0	0	0	0	0
Streptococcus agalactiae (n=1)	0	1 (100)	1 (100)	1 (100)	0	0	0	0	0	1 (100)	1 (100)	1 (100)	1 (100)	0	1 (100)

TABLE 21(A): CHARACTERISATION OF ISOLATES INTO MDR/XDR/PDR. (n=285)

MDR/XDR/PDR	No. of cases	Percentage
MDR	159	55.78%
XDR	105	36.84%
PDR	0	0

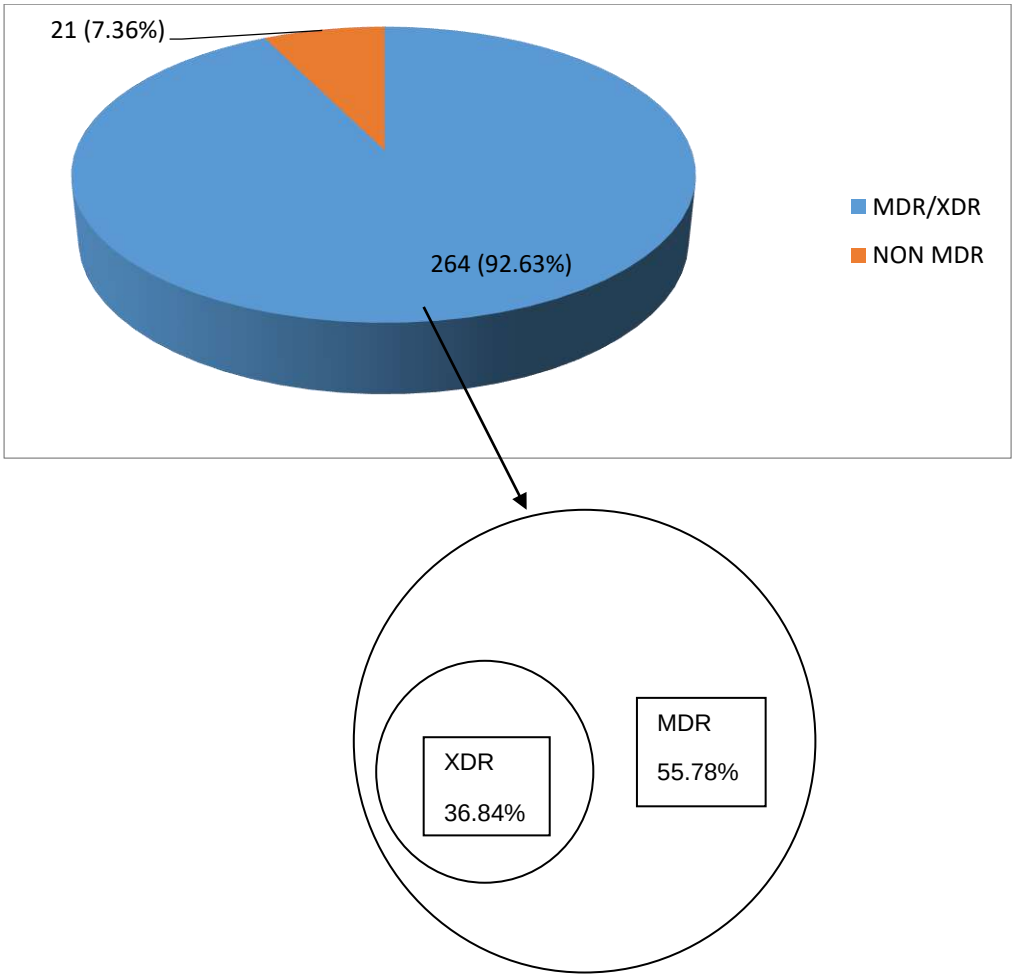


FIGURE 18: CHARACTERISATION OF ISOLATES INTO MDR/XDR/PDR.

Out of total 285 isolates, (21) 7.36% were sensitive to majority of antimicrobial agents whereas (264) 92.63% were resistant to multiple antimicrobial agents. 55.78% isolates were multi-drug resistant and 39.77% isolates were extensively drug resistant.

TABLE 21(B): CHARACTERISATION OF ISOLATES INTO MDR/XDR/PDR. (n=285)

ORGANISM	Total	MDR		XDR	
Escherichia coli	90	55	61.1%	30	33.3%
Klebsiella pneumoniae	49	15	30.6%	32	65.3%
Staphylococcus aureus	41	34	82.9%	0	0.0%
Pseudomonas aeruginosa	38	24	63.2%	12	31.6%
Acinetobacter baumanii	33	14	42.4%	19	57.6%
Enterobacter cloacae	6	2	33.3%	3	50.0%
Proteus mirabilis	6	2	33.3%	4	66.7%
Serratia marcescens	4	3	75.0%	1	25.0%
Enterococcus faecalis	3	2	66.7%	1	33.3%
Enterobacter aerogenes	2	0	0.0%	2	100.0%
Enterococcus faeceum	2	1	50.0%	0	0.0%
Morganella morganii	2	1	50.0%	0	0.0%
Acinetobacter lwoffii	1	0	0.0%	0	0.0%
Citrobacter freundii	1	1	100.0%	0	0.0%
Elizabeth meningoseptica	1	1	100.0%	0	0.0%
Enterococcus avium	1	1	100.0%	0	0.0%
Klebsiella oxytoca	1	1	100.0%	0	0.0%
Proteus vulgaris	1	0	0.0%	0	0.0%
Providentia stuarti	1	0	0.0%	1	100.0%
Pseudomonas mendocina	1	1	100.0%	0	0.0%
Streptococcus agalactiae	1	1	100.0%	0	0.0%
TOTAL	285	159	55.78%	105	36.84%

TABLE 22: ESBL PRODUCING GRAM NEGATIVE ORGANISMS.

ESBL	No. of Sample	Percentage
NON-PRODUCERS	119	50.2%
PRODUCERS	118	49.8%

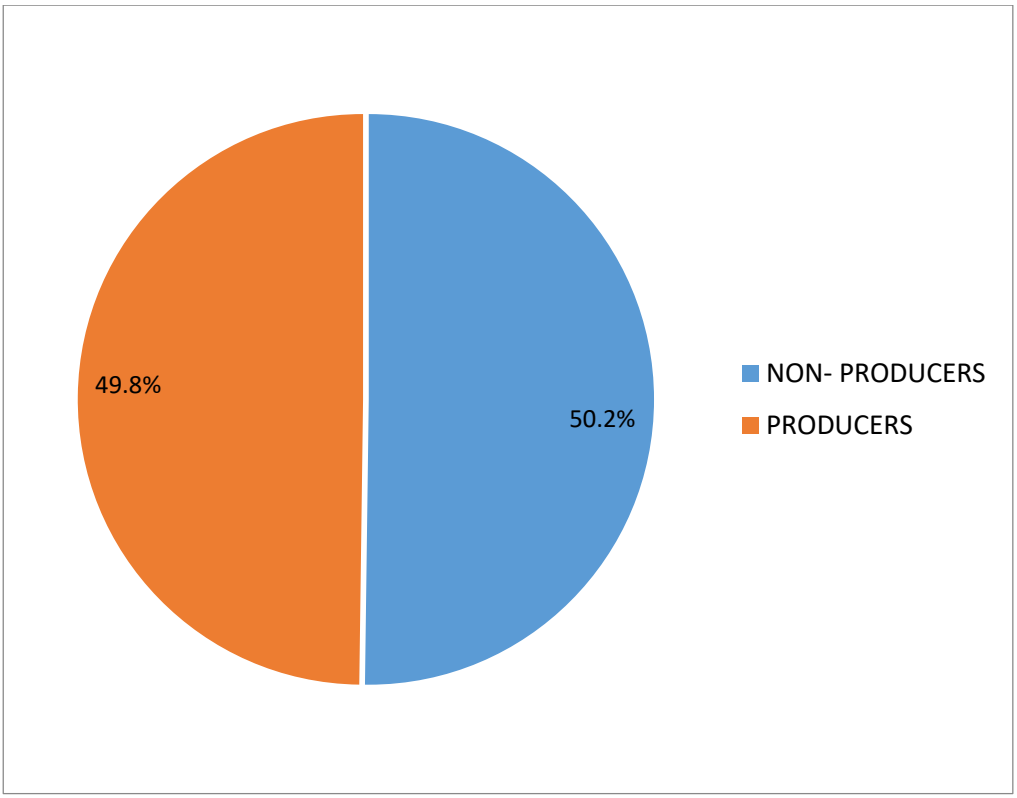


FIGURE 19: ESBL PRODUCING GRAM NEGATIVE ORGANISMS

Out of 237 Gram negative organisms 118 (49.8%) were ESBL producers and 119 (50.2%) were non ESBL producers.

TABLE 23: AmpC PRODUCING GRAM NEGATIVE ORGANISMS.

AmpC	No. of Sample	Percentage
Non producers	187	78.9%
Producers	50	21.1%

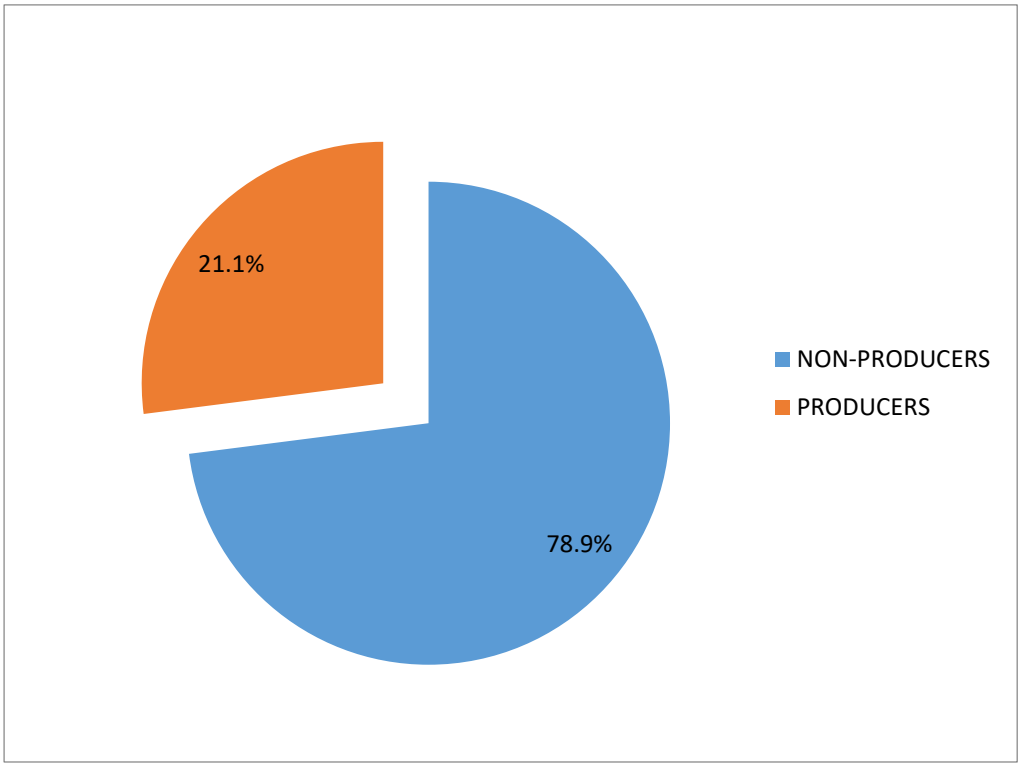


FIGURE 20: AmpC Producing GRAM NEGATIVE ORGANISMS

Out of 237 Gram negative organisms 50 (21.1%) were AmpC producers and 187 (78.9%) were non AmpC producers.

TABLE 24: MBL PRODUCING GRAM NEGATIVE ORGANISMS.

MBL	No. of Sample	Percentage
Non Producers	189	79.7%
Producers	48	20.3%

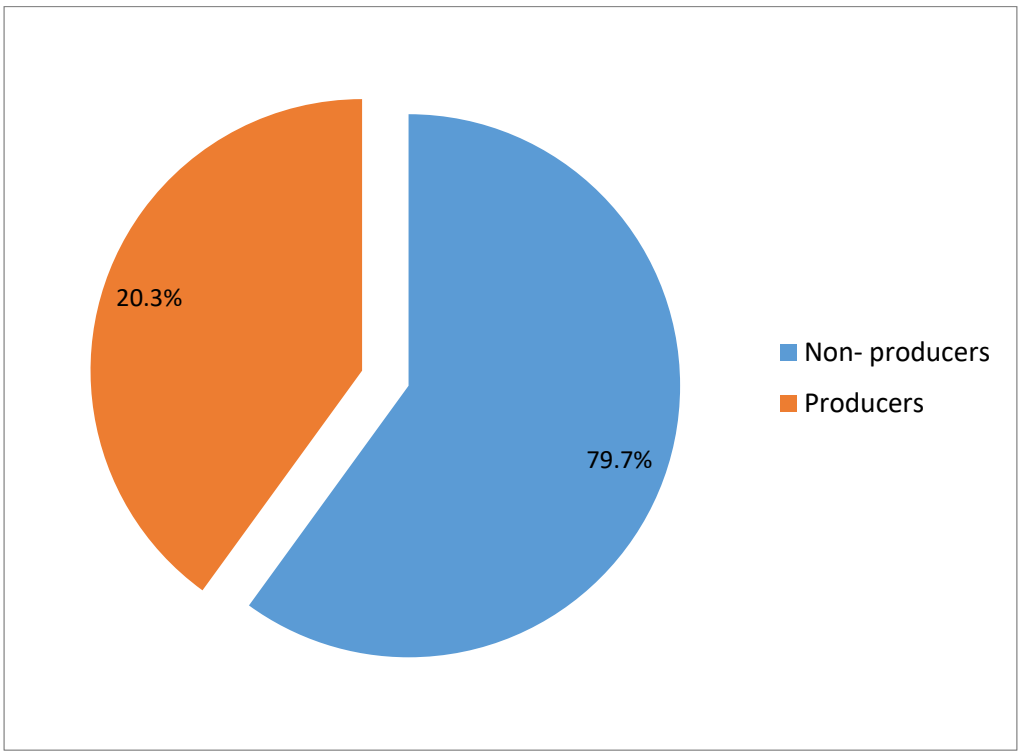


FIGURE 21: MBL producing GRAM NEGATIVE ORGANISMS

Out of 237 Gram negative organisms 48 (20.3%) were MBL producers and 189 (79.7%) were non MBL producers.

TABLE 25: DISTRIBUTION OF PROBABLE ESBL AND CONFIRMED ESBL AMONG GRAM NEGATIVE ISOLATES.

ORGANISM	Total	Probable ESBL		Confirmed ESBL	
Escherichia coli	90	81	90.0%	48	53.3%
Klebsiella pneumoniae	49	45	91.8%	27	55.1%
Pseudomonas aeruginosa	38	23	60.5%	11	28.9%
Acinetobacter baumanii	33	32	97.0%	24	72.7%
Enterobacter cloacae	6	5	83.3%	1	16.7%
Proteus mirabilis	6	5	83.3%	2	33.3%
Serratia marcescens	4	2	50.0%	0	0.0%
Enterobacter aerogenes	2	2	100.0%	2	100.0%
Morganella morganii	2	0	0.0%	0	0.0%
Citrobacterfreundii	1	1	100.0%	1	100.0%
Elizabeth meningoseptica	1	1	100.0%	1	100.0%
Klebsiella oxytoca	1	1	100.0%	0	0.0%
Providentia stuarti	1	1	100.0%	1	100.0%
Pseudomonas mendocina	1	1	100.0%	0	0.0%
Acinetobacter lwoffii	1	0	0.0%	0	0.0%
Proteus vulgaris	1	0	0.0%	0	0.0%
Total	237	200	84.4%	118	49.8%

Maximum confirmed ESBL producers were seen amongst the Escherichia coli, followed by Klebsiellapneumoniae and Acinetobacterbaumanii.

TABLE 26: DISTRIBUTION OF PROBABLE AmpC AND CONFIRMED AmpC AMONG GRAM NEGATIVE ISOLATES.

ORGANISM	Total	PROBABLE AmpC		CONFIRMED AmpC	
Escherichia coli	90	62	68.9%	18	20.0%
Klebsiella pneumoniae	49	43	87.8%	17	34.7%
Pseudomonas aeruginosa	38	31	81.6%	6	15.8%
Acinetobacter baumanii	33	29	87.9%	5	15.2%
Enterobacter cloacae	6	5	83.3%	3	50.0%
Proteus mirabilis	6	5	83.3%	1	16.7%
Serratia marcescens	4	4	100.0 %	0	0.0%
Enterobacter aerogenes	2	2	100.0 %	0	0.0%
Morganella morganii	2	1	50.0%	0	0.0%
Acinetobacter lwoffii	1	1	100.0 %	0	0.0%
Citrobacter freundii	1	1	100.0 %	0	0.0%
Elizabeth meningoseptica	1	1	100.0 %	0	0.0%
Klebsiella oxytoca	1	0	0.0%	0	0.0%
Proteus vulgaris	1	0	0.0%	0	0.0%
Providentia stuarti	1	0	0.0%	0	0.0%
Pseudomonas mendocina	1	0	0.0%	0	0.0%
Total	237	185	78.1%	50	21.1%

Maximum number of AmpC producers were seen amongst the *Escherichia coli* and *Klebsiella pneumoniae* isolates.

TABLE 27: DISTRIBUTION OF PROBABLE MBL AND CONFIRMED MBL AMONG GRAM NEGATIVE ISOLATES.

ORGANISM	TOTAL	PROBABLE MBL		CONFIRMED MBL	
Escherichia coli	90	78	87%	12	13%
Klebsiella pneumoniae	49	34	69%	15	31%
Pseudomonas aeruginusa	38	32	84%	6	16%
Acinetobacter baumanii	33	24	73%	9	27%
Enterobacter cloacae	6	4	67%	2	33%
Proteus mirabilis	6	4	67%	2	33%
Serratia marcescens	4	4	100%	0	0%
Enterobacter aerogenes	2	2	100%	0	0%
Morganella morganii	2	1	50%	1	50%
Acinetobacter lwoffii	1	1	100%	0	0%
Citrobacter freundii	1	1	100%	0	0%
Elizabeth meningoseptica	1	0	0%	1	100%
Klebsiella oxytoca	1	1	100%	0	0%
Proteus vulgaris	1	1	100%	0	0%
Providentia stuarti	1	0	0%	1	100%
Pseudomonas mendocina	1	1	100%	0	0%
TOTAL	237	188	79%	49	21%

Maximum number of MBL producers were seen amongst the *Escherichia coli* and *Klebsiella pneumoniae* isolates.

TABLE 28: CHARACTERISATION OF ORGANISMS ACCORDING TO RESISTANCE MECHANISMS.

ORGANISM	Total	AmpC		AmpC, MBL		ESBL		ESBL, AmpC		ESBL, AmpC, MBL		ESBL, MBL		MBL		No mechanism	
Acinetobacter baumanii	33	0	0.0%	0	0.0%	13	39.4%	5	15.2%	0	0.0%	6	18.2%	3	9.1%	6	18.2%
Acinetobacter lwoffii	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Citrobacter freundii	1	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Elizabeth meningoseptica	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%
Enterobacter aerogenes	2	0	0.0%	0	0.0%	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Enterobacter cloacae	6	2	33.3%	1	16.7%	0	0.0%	0	0.0%	0	0.0%	1	16.7%	0	0.0%	2	33.3%
Escherichia coli	90	5	5.6%	3	3.3%	33	36.7%	9	10.0%	1	1.1%	5	5.6%	4	4.4%	30	33.3%
Klebsiella oxytoca	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Klebsiella pneumoniae	49	4	8.2%	2	4.1%	11	22.4%	7	14.3%	4	8.2%	5	10.2%	3	6.1%	13	26.5%
Morganella morganii	2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	50.0%	1	50.0%
Proteus mirabilis	6	1	16.7%	0	0.0%	1	16.7%	0	0.0%	0	0.0%	1	16.7%	1	16.7%	2	33.3%
Proteus vulgaris	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Providentia stuarti	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%
Pseudomonas aeruginosa	38	3	7.9%	0	0.0%	7	18.4%	2	5.3%	1	2.6%	1	2.6%	3	7.9%	21	55.3%
Pseudomonas mendocina	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%
Serratia marcescens	4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	4	100.0%
Total	237	15	6.3%	6	2.53%	68	28.7%	23	9.70%	6	2.53%	21	8.86%	16	2.53%	82	34.59%

TABLE 29: DISTRIBUTION OF RESISTANCE MECHANISMS AMONGST THE PRODUCERS.

RESISTANCE MECHANISMS	No. of Producers	Percentage
ONLY ESBL	68	43.6%
ESBL,AmpC	23	14.7%
ESBL,MBL	21	13.5%
ONLY MBL	16	10.3%
ONLY AmpC	15	9.6%
AmpC,MBL	6	3.8%
ESBL,AmpC,MBL	6	3.8%

The various resistance mechanisms in Gram negative bacteria were seen in different combinations in the isolates.

Isolates with only ESBL production were 43.6%, Only MBL production was seen in 10.3% and Only AmpC production was seen in 9.6%.

ESBL with Amp C β-lactamase production were 14.7%, ESBL with Metallo- β-lactamase production were found out to be 13.5%, AmpC with MBL production were 3.8%.

Combined production of ESBL, AmpC and MBL production was seen in 3.8% of isolates.

TABLE 30: COMPARISON OF ANTIBIOTIC RESISTANCE PROFILE OF ESBL AND NON-ESBL PRODUCERS.

ANTIBIOTICS	ESBL producers (n=118)		Non ESBL producers (n=119)		Total	P-value
AMIKACIN	61	51.70%	36	30.30%	97	0.001
GENTAMICIN	76	64.40%	51	42.90%	127	0.001
CIPROFLOXACIN	112	94.90%	83	69.70%	195	0.001
LEVOFLOXACIN	106	89.80%	85	71.40%	191	0.001
MINOCYCLINE	91	77.10%	84	70.60%	175	0.253
COTRIMOXAZOLE	82	69.50%	69	58.00%	151	0.065
AMPICILLIN	109	92.40%	98	82.40%	207	0.03
AMOXICILLIN-CLAVUNATE	89	75.40%	95	79.80%	184	0.415
CEFOPERAZONE-SULBACTAM	68	57.60%	51	42.90%	119	0.027
PIPERACILLIN-TAZOBACTAM	88	74.60%	65	54.60%	153	0.002
TICARCILLIN	111	94.10%	81	68.10%	192	0.001
CEFTRIAXONE	110	93.20%	96	80.70%	206	0.006
CEFTAZIDIME	113	95.80%	71	59.70%	184	0.001
CEFEPIME	99	83.90%	60	50.40%	159	0.001
IMIPENEM	72	61.00%	46	38.70%	118	0.001
MEROPENEM	77	65.30%	49	41.20%	126	0.001
ERTAPENEM	87	73.70%	71	59.70%	158	0.022
DORIPENEM	100	84.70%	73	61.30%	173	0.001
TIGECYCLINE	48	40.70%	42	35.30%	90	0.393

p value <0.05 is significant.

It was observed that ESBL producers showed more resistance towards Aminoglycosides, ciprofloxacin, fourth generation cephalosporins, beta lactam and beta lactamase combination and doripenem as compared to ESBL non producers.

TABLE 31: COMPARISON OF ANTIBIOTIC RESISTANCE PROFILE OF AmpC AND NON-AmpC PRODUCERS.

ANTIBIOTICS	AmpC producers (n=50)		Non- AmpC producers (n=187)		Total	P-value
AMIKACIN	29	58.00%	68	36.40%	97	0.006
GENTAMICIN	34	68.00%	93	49.70%	127	0.025
CIPROFLOXACIN	47	94.00%	148	79.10%	195	0.015
LEVOFLOXACIN	43	86.00%	148	79.10%	191	0.276
MINOCYCLINE	41	82.00%	134	71.70%	175	0.139
COTRIMOXAZOLE	35	70.00%	116	62.00%	151	0.298
AMPICILLIN	44	88.00%	163	87.20%	207	0.875
AMOXICILLIN-CLAVUNATE	44	88.00%	140	74.90%	184	0.048
CEFOPERAZONE SULBACTAM	36	72.00%	83	44.40%	119	0.001
PIPERACILLIN-TAZOBACTAM	42	84.00%	111	59.40%	153	0
TICARCILLIN	44	88.00%	148	79.10%	192	0.156
CEFTRIAXONE	47	94.00%	159	85.00%	206	0.095
CEFTAZIDIME	49	98.00%	135	72.20%	184	0
CEFEPIME	43	86.00%	116	62.00%	159	0.001
IMIPENUM	34	68.00%	84	44.90%	118	0.004
MEROPENUM	34	68.00%	92	49.20%	126	0.025
ERTAPENUM	37	74.00%	121	64.70%	158	0.216
DORIPENUM	42	84.00%	131	70.10%	173	0.048
TIGECYCLINE	22	44.00%	68	36.40%	90	0.323

p value <0.05 is significant.

It was observed that AmpC producers showed more resistance towards Aminoglycosides, ciprofloxacin, fourth generation cephalosporins, beta lactam and beta lactamase combination and doripenem as compared to AmpC non producers.

TABLE 32: COMPARISON OF ANTIBIOTIC RESISTANCE PROFILE OF MBL PRODUCERS.

ANTIBIOTICS	MBL NON-PRODUCERS (n=75)		MBL PRODUCERS (n=49)		Total	Chi-square value	P-value
AMIKACIN	48	64.0%	33	67.3%	81	0.147	0.702
GENTAMICIN	53	70.7%	33	67.3%	86	0.154	0.695
CIPROFLOXACIN	69	92.0%	44	89.8%	113	0.178	0.673
LEVOFLOXACIN	71	94.7%	44	89.8%	115	1.045	0.307
MINOCYCLINE	64	85.3%	35	71.4%	99	3.56	0.059
COTRIMOXAZOLE	62	82.7%	34	69.4%	96	2.989	0.084
AMOXICLLIN-CLAVUNATE	70	93.3%	49	100.0 %	119	3.404	0.065
CEFOPERAZONE-SULBACTAM	54	72.0%	38	77.6%	92	0.477	0.49
PIPERACILLIN-TAZOBACTAM	62	82.7%	46	93.9%	108	3.314	0.069
TICARCILLIN	71	94.7%	45	91.8%	116	0.393	0.531
CEFTRIAXONE	74	98.7%	48	98.0%	122	0.093	0.760
CEFTAZIDIME	69	92.0%	45	91.8%	114	0.001	0.974
CEFEPIME	64	85.3%	44	89.8%	108	0.525	0.469
IMIPENEM	58	77.3%	44	89.8%	102	3.154	0.076
MEROPENEM	60	80.0%	42	85.7%	102	0.663	0.415
ERTAPENEM	67	89.3%	47	95.9%	114	1.733	0.188
DORIPENEM	70	93.3%	47	95.9%	117	0.372	0.542
TIGECYCLINE	35	46.7%	28	57.1%	63	1.301	0.254

p value <0.05 is significant.

It was observed that MBL producers showed more resistance towards fourth generation cephalosporins, beta lactam and beta lactamase combination and doripenem as compared to MBL non producers.

TABLE 33: METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS.

MRSA	No. of cases	Percentage
YES	27	65.85%
NO	14	34.14%

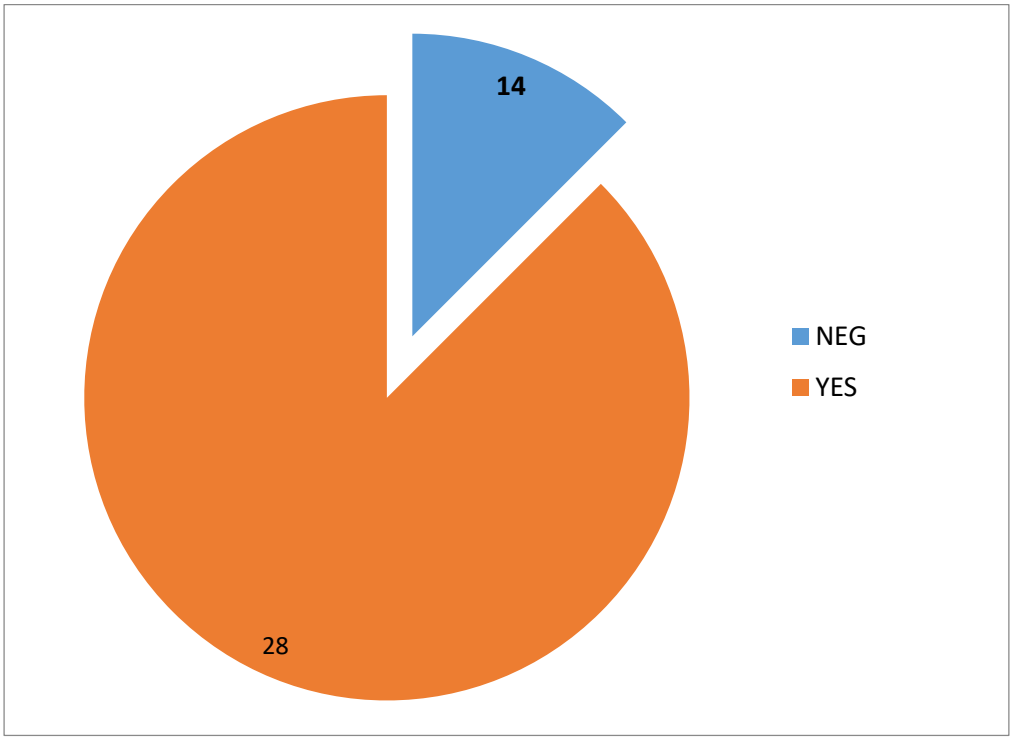


FIGURE 22: METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS

Out of 41 Staphylococcus aureus isolates, 27(65.85%) were MRSA and 14(34.14%) were non- MRSA.

VANCOMYCIN RESISTANT ENTEROCOCCI (VRE)

All Enterococcus isolates obtained were susceptible to vancomycin.

TABLE 34: ANTIBIOTIC SUSCEPTIBILITY OF MRSA AND MSSA.

ANTIBIOTIC		*Staphylococcus aureus*				Total	p-value
		MSSA (14)		MRSA (27)			
Amikacin	R	14	35.9%	25	64.1%	39	0.539
	S	0	0.0%	2	100.0%	2	
Gentamicin	R	6	35.3%	11	64.7%	17	0.896
	S	8	33.3%	16	66.7%	24	
Ciprofloxacin	R	12	31.6%	26	68.4%	38	0.265
	S	2	66.7%	1	33.3%	3	
Levofloxacin	R	14	34.1%	27	65.9%	41	
Minocycline	R	14	34.1%	27	65.9%	41	
Cotrimoxazole	R	9	36.0%	16	64.0%	25	0.754
	S	5	31.3%	11	68.8%	16	
Penicillin	R	11	30.6%	26	72.2%	36	0.317
	S	3	60.0%	2	40.0%	5	
Erythromicin	R	3	14.3%	18	85.7%	21	0.009
	S	11	55.0%	9	45.0%	20	
Clindamycin	R	4	23.5%	13	76.5%	17	0.321
	S	10	41.7%	14	58.3%	24	
Linezolid	R	0	0.0%	4	100.0%	4	0.280
	S	14	37.8%	23	62.2%	37	
Daptomycin	R	7	35.0%	13	65.0%	20	0.910
	S	7	33.3%	14	66.7%	21	
Vancomycin	R	0	0.0%	0	0.0%	0	0.539
	S	14	36.8%	27	100.0%	41	
Teicoplanin	R	0	0.0%	4	100.0%	4	0.280
	S	14	37.8%	23	62.2%	37	
Tetracycline	R	4	28.6%	10	71.4%	14	0.734
	S	10	37.0%	17	63.0%	27	
Total		14	34.1%	27	65.9%	41	

p value <0.05 is significant.

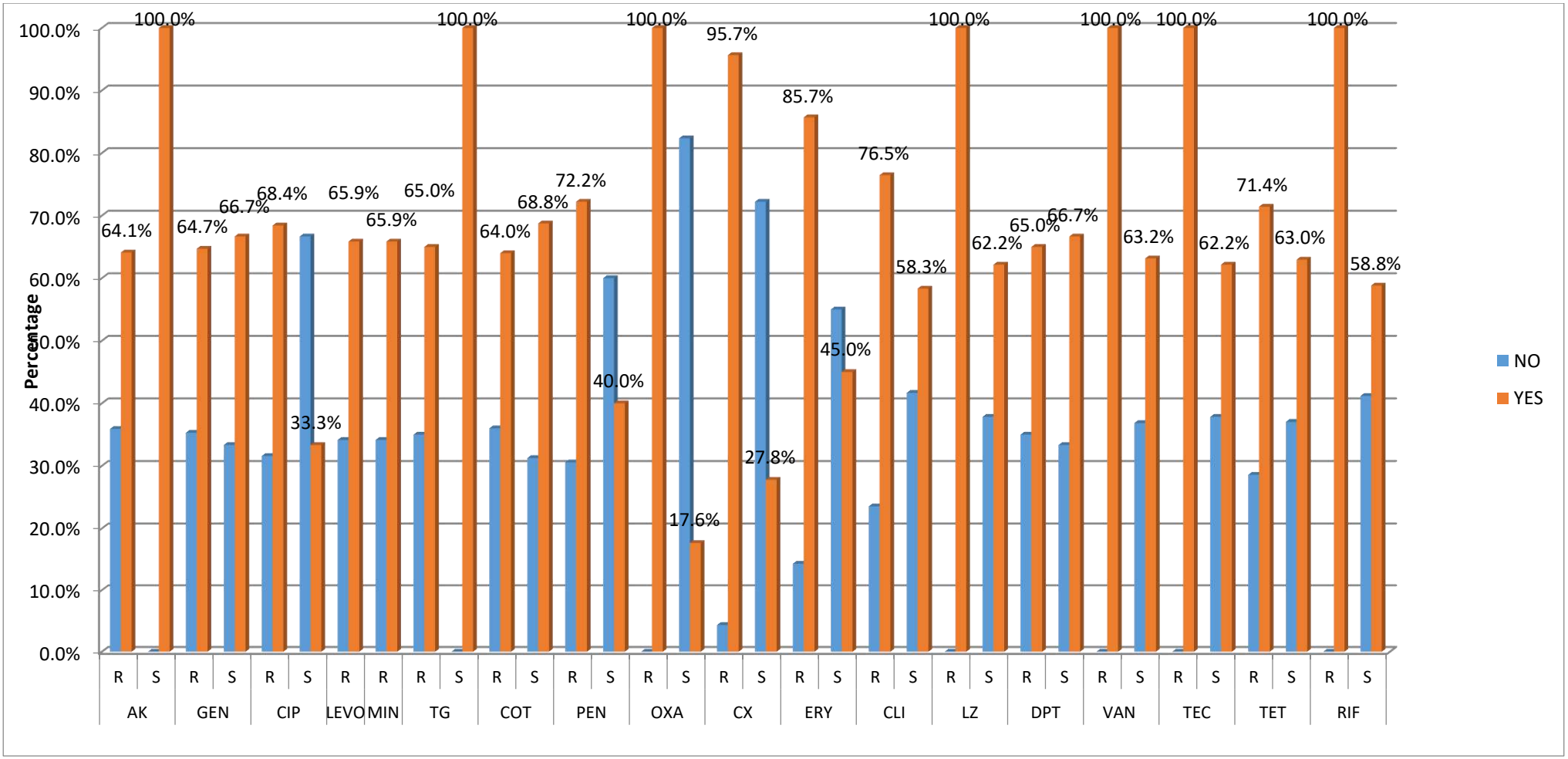


FIGURE 23: ANTIBIOTIC SUSCEPTIBILITY OF MRSA AND MSSA.

TABLE 35: OUTCOME OF PATIENT.

OUTCOME	NUMBER OF PATIENTS	PERCENTAGE
Discharged	254	95.13%
Discharge Against Medical Advice (DAMA)	07	2.62%
Expired	06	2.24%

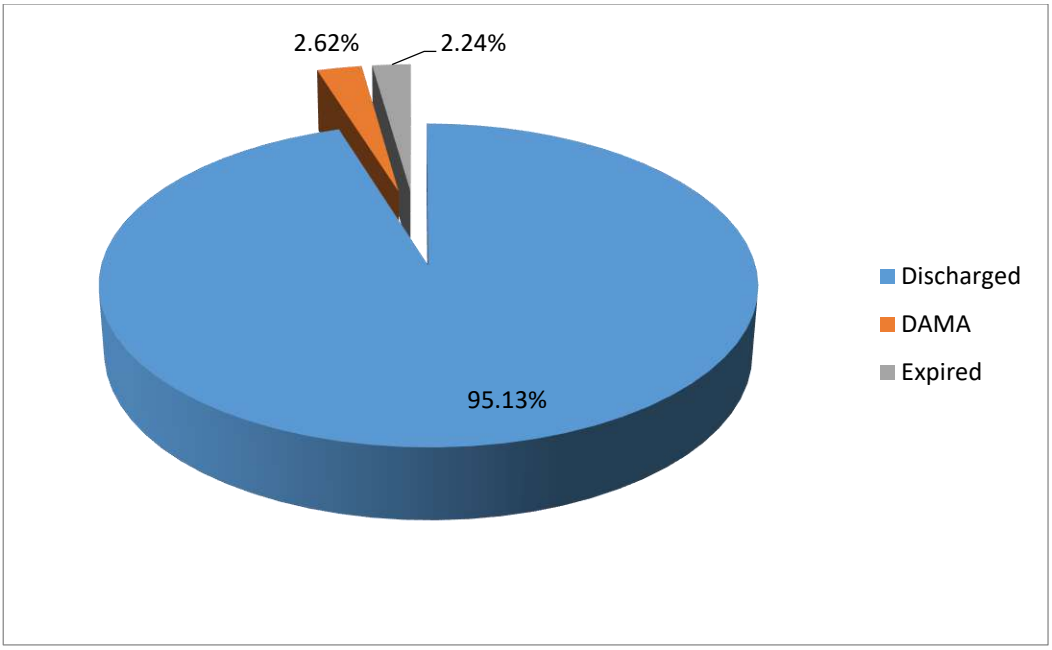


FIGURE: 24 OUTCOME OF PATIENTS.

DISCUSSION

The control of wound infections has become more challenging due to widespread bacterial resistance to antibiotics and to greater incidence of infections caused by various β-lactamases producing strains, MRSA and VRE. The clinical microbiological laboratory has the task of screening and confirming such isolates therefore culture and antibiotic susceptibility testing plays an important role in the treatment of wound infection and also prevents from developing further complications. This prospective study was done in Department of Microbiology in DMCH. Patients suspected with wound infections admitted in DMC Hospital were enrolled in the study. A total of 882 samples were enrolled out of which 267 showed growth of various isolates. In developing countries like ours, inspite of strict aseptic precautions, vigorous antibiotic prophylaxis and meticulous surgical techniques wound infection is still a challenge to the surgeon however skilled he may be.

In the present study out of 882 specimens, 285 isolates were identified (32.31%). Maximum number of patients were admitted in ICUs 430 (48.8%) followed by surgical wards 238 (27%) and medical wards 214 (24.3%). Among these males were more (65%) as compared to females (35%) with male to female ratio of 1.8:1. Similar findings were seen in a study done by Surendra B. Patil et al from Maharashtra which showed 94 (62.6%) males and 56 (37.4%) females in a study of 150 specimens.[13] In another study by Mahat P et al in Nepal, among 503 patients 370 (73.56%) male patients and 133 (26.44%) female patients were seen.[18]

In the present study Out of 882 samples, 267 samples showed growth with (250) 93.63% and (17) 6.36% showing monomicrobial and polymicrobial growths respectively.

In the present study, organisms isolated were *Escherichia coli* 90 (31.6%), *Klebsiella pneumoniae* 49 (17.2%), *Staphylococcus aureus* 41 (14.4%), *Pseudomonas aeruginusa* 38 (13.3%), *Acinetobacter baumanii* 33 (11.6%), *Enterobacter cloacae* 6 (2.1%), *Proteus mirabilis* 6 (2.1%), *Serratia marscescens* 4 (1.4%), *Enterococcus faecalis* 3

(1.1%), *Enterococcus faecium* 2 (0.7%), *Enterobacter aerogenes* 2(0.7%), *Morganella morganii* 2 (0.7%), *Acinetobacter lwoffi* 1 (0.4%), *Citrobacter freundii* 1 (0.4%), *Elizabeth meningoseptica* 1 (0.4%), *Klebsiella oxytoca* 1 (0.4%), *Proteus vulgaris* 1 (0.4%), *Providentia stuarti* 1 (0.4%), *Pseudomonas mendocina* 1 (0.4%), *Enterococcus avium* 1(0.4%), *Streptococcus agalactiae* 1 (0.4%).

Similar results with most common pathogen isolated was E.coli (36, 19.14%) and the second most common pathogen *Staphylococcus aureus* (31, 16.48%) were seen in a study by Roopa. C et al in Karnataka.[83] In the study by Surendra B. Patil et al *Pseudomonas aeruginosa* was the most common bacteria isolated 46 (32.2%) followed by *Klebsiella* 28 (19.6%), *Staphylococcus aureus* 24 (16.8%), *Proteus* species 22 (15.4%),*Escherichia coli* 15 (10.5%) and coagulase negative staphylococci (CONS) 8 (5.5%).[13]

In study by Eveline geubbels et al[88], the predominant isolate was *Staphylococcus aureus* (35%) which is in contrast to our study.

In a study by Jyoti sonawane[89] et al the predominant isolate was *Staphylococcus aureus* which was (29.26%) followed by *Escherichia coli* (18.70%), *Pseudomonas aeruginosa* (15.3%) which is in contrast to our study. In a study by Prabhat ranjan[90] the predominant isolate in SSI was *Pseudomonas aeruginosa* 29.6%, *Escherichia coli* 20.3%, *Klebsiella pneumoniae* 16.6%, *Staphylococcus aureus* 14.3% which is contrast to our study.

The antibiotic sensitivity pattern of *Escherichia coli* in our study shows, 86 (95.55%) were sensitive to amikacin, ciprofloxacin 80 (88.8%), ceftriaxone 78 (86.66%), ceftazidime 77 (85.55%), ticarcilllin 75(83.33%), amoxycillin-clavunate 66 (73.33%), Cefepime 61 (67.77%), Cefoperazone-sulbactam 37 (41.11%). In a study by Shankar srinivasan et al[91] sensitivity pattern of *Escherichia coli* was 42.7% to amikacin. In a study by Sanjay dhar et al[92] sensitivity pattern of *Escherichia coli* was 50% to amikacin, 30% to ciprofloxacin. In a study by Misra et al[93] sensitivity pattern of Escherichia coli was 65% to cefotaxime, 89% to amikacin, 35% to gentamicin, 19% to ciprofloxacin. In a study by Fantahun biadglegne et al[94] sensitivity of *Escherichia coli*

to gentamicin was 75%. In a study by Jyoti sonawane et al[89] sensitivity pattern of *Escherichia coli* was 13.86% to ciprofloxacin, 49.5% to gentamicin, 99.01% to imipenem.

Sensitivity of *Klebsiella pneumoniae* shows 46 (93.87%) were sensitive to ceftriaxone, 45 (91.83%) were sensitive to ceftazidime, 43 (87.75) were sensitive to doripenum, 42 (85.71) sensitive to ciprofloxacin, 42 (85.71%) sensitive to minocycline, 40 (81.63%) sensitive to cefepime, 40 (81.63%) sensitive to amoxycillin-clavunate.

In study by Narinder Kaur et al[71], 66 *Klebsiella pneumoniae* was sensitive to amikacin 44(66.6%) followed by ceftazidime 39 (59%), ceftriaxone 38 (57.5%), Gentamicin 38 (57.7%), cefoperazone-sulbactam 36 (54.5%), imipenum 33 (50%), meropenum 33 (50%), piperacillin-tazobactam 32 (48.4%), cefepime.

Heavy antibiotic use is also a risk factor for acquisition of an ESBL producing organisms.[95] Use of many third generation cephalosporins, ceftazidime, quinolones and aminoglycosides has been shown to be associated with emergence of ESBLs. In the present study, the prevalence of ESBL in Gram negative bacteria was 49.8%, whereas Narinder K et al reported 25% of ESBL producers.[71]

Similar findings were reported by various authors where ESBL production ranged from 19.6-40%, [62, 96, 97, 98] in contrast to study done by Harakuni et al who reported higher prevalence of ESBLs 74% in the admitted patients.[99]

In the present study, we used an AmpC disc test which is an easier, reliable and rapid method of detection of isolates that harbour AmpC β-lactamase. AmpC production was 21.1%, maximum number of AmpC Producers were seen amongst the *Escherichia coli* 20.0% and *Klebsiella pneumoniae* 34.7% isolates. Another studies reported 14.8%, 17.3% and 22% of the Amp C producers.[49,100,101] Shubha et al founded maximum AmpC β-lactamase production in *Klebsiella* (24.1%) and *E.coli* (37%).[102]

Surgical Site infections (SSI) are the infection following an invasive surgical procedure and are the most frequently reported hospital acquired infections (HAI).[103,104] There are numerous patient-related

(endogenous) and process/ procedural related (exogenous) risk factors that can affect a patient's risk of developing an SSI. Some of these risk factors such as age and gender cannot be changed. However, number of other factors, such as diabetes, smoking, proper use of antibiotics and intraoperative technique can be improved to reduce the chances of developing SSIs.[105]

In the present study the organism that was isolated more frequently was *Escherichia coli* (31.6%) this was followed by *Klebsiella pneumoniae* (17.2%), *Pseudomonas aeroginosa* (13.3 %), *Acinetobacter spp* (11.6%) and *Staphylococcus aureus* (14.4%). This observation was contradictory to various studies which stated *Staphylococcus aureus* as the most commonly isolated organism.[106,107] All the *Escherichia coli* and *Klebsiella pneumoniae* strains isolated were extended spectrum β lactamase enzyme producer (ESBLs) , most of which showed sensitivity to Amikacin and Gentamicin. Similarly all the *Staphylococcus aureus* strains isolated were MRSA which showed sensitivity to Vancomycin and Linezolid. All strains of *Acinetobacter spp* and *Pseudomonas aeroginosa* were sensitive to Amikacin and Imipenem. Thus the organisms isolated from SSI were found increasingly resistant to commonly used antibiotics for preoperative prophylaxis like amoxicillin, cephalosporins, penicillins. This is in agreement with a study by Tourmousoglou CE et al.[108]

In the present study, highest incidence of *Staphylococcus aureus* was seen in clean wounds (33.33%) followed by *Escherichia coli (23.80%)*, *Escherichia coli* was highest in clean contaminated wounds (44.82%) followed by *Klebsiella pneumoniae (17.24%)* and *Escherichia coli* in contaminated wounds (43.10%) and also in dirty wounds (35.29%). Similar results were seen in a study by Narula H et al in rajasthan where the incidence of Gram-positive organisms was greater in infected clean wounds (68.18%) while Gram-negative organisms dominated in rest three categories, i.e. infected clean contaminated wounds (64.71%), infected contaminated wounds (76%), and infected dirty wounds (71.43%). Highest percent of total *Staphylococcus aureus* isolates were found in infected clean wounds (37.50%) followed

by *Klebsiella pneumoniae* (14.29%) , while highest percent of both *Klebsiella pneumoniae* and *Pseudomonas sp.* isolates were found in infected contaminated wounds (47.62% and 33.33%, respectively).[109]

Coordination and application of techniques and procedures like preoperative bathing with chlorhexidine reduces pathogenic organisms on the skin but has a nonsignificant reduction in wound infections. Cleansing with a cloth impregnated with chlorhexidine just before operation will provide additional removal of dirt and further reduction in skin bacteria. The use of conduit drains and drainage through a working incision increases the incidence of infection. Closed suction drains may be useful for the removal of fluid from large potential dead spaces, but do not, themselves, prevent infection.[110] Success in surgery depends on prevention and proper management of a wound. In order to adapt to the policies which decrease the incidence of SSIs, the most important requirement is to collect data, perform wound surveillance and surgical inspection.[111]

Thus in spite of the use of prophylactic antibiotics, SSIs are still a real risk of surgery and represent a substantial burden of disease for both patients and healthcare services in terms of morbidity, mortality and economic cost. Periodic surveillance of SSI will guide the infection control committee in laying down strict guidelines to further decrease SSI incidence in our set up, which is an indicator of good health care in a given system.

SUMMARY

- This study entitled "Microbiological profile of wound infections in admitted patients" was a prospective study conducted on patients admitted Dayanand Medical College and Hospital, Ludhiana over a period of one year (1st January 2019 - 31st December 2019) in the Department of Microbiology.
- Various samples collected from various wards and ICUs were processed in the Microbiology laboratory. Out of 882 samples 267 samples showed growth of various Gram negative or Gram positive organisms.
- Among the total patients enrolled maximum patients were in the age group of 51-60 years (25.5%), whereas minimum patients were in the age group of >80 years(0.6%). Mean is 54.61 and standard Deviation is 16.71.
- Majority of patients were males 573 (65%) as compared to females 309 (35%).
- Majority of patients were from ICUs (48.8%), followed by Medical wards (27%) and Surgical Wards (24.3%).
- Maximum numbers of samples were wound swabs (43.08%), followed by pus (38.54%) and tissue (18.36%).
- Out of 882 samples, monomicrobial growth was seen in 250 (93.65%) samples and polymicrobial growth in 17 (6.36%) samples respectively. In Polymicrobial growths there were 2 organisms each, thus in total 285 isolates were obtained.
- Out of total 285 isolates, 60.22% were multi-drug resistant and 39.77% were extensively drug resistant. No organism with Pan-drug resistance was obtained.
- Maximum multi-drug resistant and extensively drug resistant Gram negative organisms were seen amongst the Escherichia coli, Klebsiella pneumoniae isolates respectively.
- Out of total 267 wounds, 46.81% were post-operative, 20.59% being the diabetic ulcers, abscesses were 13.10%, 11.61% were traumatic wounds followed by leg ulcers being 5.67%.

- Of 125 post-operative wounds, clean wounds were 21 (16.8%), clean contaminated were 29(23.2%), contaminated 58(46.4%) and dirty 17(13.6%).
- Gram negative isolates were obtained in 83.2% of the isolates and Gram positive isolates were found to be 16.8%.
- Most common organisms isolated were *Escherichia coli* 90 (31.6%), *Klebsiella pneumoniae* 49 (17.2%), *Staphylococcus aureus* 41(14.4%), *Pseudomonas aeruginusa* 38(13.3%), *Acinetobacter baumanii* 33 (11.6%).
- Among the Gram negative isolates *E.coli* showed higher sensitivity to Aminoglycosides (40% - 88%), carbapenams (24%-71%) and cephalosporins (80% - 85%) as compared to *Klebsiella pneumoniae*. in which sensitivity was (80% - 95%) for Cephalosporins, (24% -70%) for Carbapepenams
- *Pseudomonas aeruginosa was* 78.94% sensitive to Amoxicillin-clavunate and (35% -70%) Amoniglycosides.
- Out of 237 Gram negative organisms 118 (49.8%) were ESBL producers and 119 (50.2%) were non ESBL producers.
- Out of 237 Gram negative organisms 50 (21.1%) were AmpC producers and 187 (78.9%) were non AmpC producers.
- Out of 237 Gram negative organisms 48 (20.3%) were MBL producers and 189 (79.7%) were non MBL producers.
- Out of 41 Staphylococcus aureus isolates, 27(65.85%) were MRSA and 14(34.14%) were non- MRSA.
- Isolates with only ESBL production were 43.6%, Only MBL production was seen in 10.3% and Only AmpC production was seen in 9.6%.
- ESBL with Amp C β-lactamase production were 14.7%, ESBL with Metallo- β-lactamase production were found out to be 13.5%, AmpC with MBL production were 3.8%.
- Combined production of ESBL, AmpC and MBL production was seen in 3.8% of isolates.

- Maximum confirmed ESBL producers were seen amongst the *Escherichia coli*, followed by *Klebsiella pneumoniae* and *Acinetobacter baumanii*.
- Maximum number of AmpC producers were seen amongst the *Escherichia coli* and *Klebsiella pneumoniae* isolates.
- It was observed that ESBL producers showed more resistance towards Aminoglycosides, ciprofloxacin, fourth generation cephalosporins, beta lactam and beta lactamase combination and doripenem as compared to ESBL non producers.
- It was observed that AmpC producers showed more resistance towards Aminoglycosides, ciprofloxacin, fourth generation cephalosporins, beta lactam and beta lactamase combination and doripenem as compared to AmpC non producers.
- *Staphylococcus aureus* was 89.92% resistant to Penicillin. Out of 41 Staphylococcus aureus isolates, 27(65.85%) were MRSA and 14(34.14%) were non- MRSA.
- MRSA isolates were 72.2% resistant to Penicillin and (60% - 70%) resistant to Aminoglycosides.
- Incidence of *Staphylococcus aureus* was (29.2%) in clean wounds which was maximum followed by *Escherichia coli (25%).*
- *Escherichia coli* was highest in clean contaminated wounds (44.2%) followed by *Klebsiella pneumoniae* and *Staphylococcus aureus* both being *(14%).*
- In contaminated and dirty wounds *Escherichia coli* was seen to be (37.2%) and (27.9%) respectively.

CONCLUSION

Today antibiotic resistance has become a global threat. The burden is more in the developing countries as there is irrational use of broad spectrum antibiotics. Carbapenems are among the few backup agents for multidrug resistant gram negative pathogens. However, increasing usage of Carbapenems has resulted in development of resistance to this group of drugs as well. β-lactamases have been identified worldwide with increasing frequency and the isolates producing these enzymes have been responsible for outbreaks in hospital settings. They are responsible for high mortality rate of patients as the options of treating these infections are limited. Early detection by simple phenotypic screening tests is rapid, cost effective and convenient methods for the detection of various β-lactamase producing strains in developing countries like India. Moreover, to combat the problem of emergence and the spread of multidrug resistant organisms, a combined interaction between the microbiologist, clinicians and infection control team is needed. This study provides the data of predisposing risk factors and its causative microbial flora for various wound infections in our tertiary care. The high level of resistance among bacteria limits the use of antimicrobial agents for therapy. Reduction of HAIs and antimicrobial resistance is both a challenge and goal of all microbiologists around the world. Continuous surveillance for multidrug resistant strains is necessary to prescribe appropriate empirical treatment and also to assess effectiveness of infection control practices. This study will helps us in maintaining the conditions and use of appropriate antibiotics to manage such patients. To conclude, awareness as well as detection of these organisms in hospital set up, coupled with stringent hospital infection control practices and judicious use of antibiotics will help us fight this deadly menace.

BIBLIOGRAPHY

1. Atiyeh BS, Ioannovich J, Al-Amm CA, El-Musa KA. Management of acute and chronic open wounds: the importance of moist environment in optimal wound healing. Curr Pharm Biotechnol 2002;3(3):179-95.
2. Bowler PG, Duerden BI, Armstrong DG. Wound microbiology and associated approaches to wound management. Clin Microbiology review. 2001;14(2):244-69.
3. Gottrup F, Melling A, Hollander DA. An overview of surgical site infections: aetiology, incidence and risk factors. EWMA journal. 2005;5(2):11-5.
4. Mizell JS. Complications of abdominal surgical incisions. Up To Date. Accessed on. 2016.
5. Mundhada AS, Tenpe S. A study of organisms causing surgical site infections and their antimicrobial susceptibility in a tertiary care Government Hospital. Indian J Pathol Microbiol 2015;58:195-200.
6. Kirkland KB, Briggs JP, Trivette SL, Wilkinson WE, Sexton DJ. The impact of surgical-site infections in the 1990s: attributable mortality, excess length of hospitalization, and extra costs. Infect Control Hosp Epidemiol. 1999;20(11):725-30.
7. Weigelt JA, Lipsky BA, Tabak YP, Derby KG, Kim M, Gupta V. Surgical site infections: Causative pathogens and associated outcomes. Am J Infect Control. 2010;38(2):112–20.
8. Kernodle DS. Kaiser AB. Postoperative infections and antimicrobial prophylaxis. In; Mandell gl. Bennett je, Dolin r eds. Principle and practice of infectious diseases. 4th edition newyork, Churchill livingstone. 1995:2742-56.
9. Procop GW, Church DL, Hall JS, Janda WM, Koneman EW, Schreckenberger PC, et al. Introduction to microbiology: Part II Guidelines for the Collection, Transport, Processing, Analysis and Reporting of Cultures from Specific Specimen Sources. Koneman‟s colour Atlas and textbook of Diagnostic Microbiology. 7th edition. 2016.

10. Mulu A, Moges F, Tessema B, Kassu A. Pattern and multiple drug resistance of bacterial pathogens isolated from wound infection at University of Gondar Teaching Hospital, Northwest Ethiopia. Ethiop Med J. 2006;44(2):125-31.
11. Nichols RL. Surgical wound infection. Am J Med. 1991;91(3B):54S-64S.
12. Narula H, Chikara G, Gupta P. A prospective study on bacteriological profile and antibiogram of postoperative wound infections in a tertiary care hospital in Western Rajasthan. J Family Med Prim Care. 2020;9(4):1927-34.
13. Patil SB, Paramne A, Harsh S. Antibiotic susceptibility of wound isolates in plastic surgery patients at a tertiary care centre. Indian J Plast Surg. 2016;49(2):198-205.
14. Veeraraghavan B, Jesudason MR, Prakasah JAJ, Anandan S, Sahni RD, Pragasam AK, et al. Antimicrobial susceptibility profiles of gram-negative bacteria causing infections collected across India during 2014-2016: Study for monitoring antimicrobial resistance trend report. Indian J Med Microbiol. 2018;36(1):32-6.
15. Hindler JA, Humphries RM. Colistin MIC Variability by Method for Contemporary Clinical Isolates of Multidrug-Resistant Gram-Negative Bacilli. Journal of Clinical Microbiol. 2013;51(6):1678-84.
16. Nichols RL. Preventing surgical site infections: a surgeon's perspective. Emerg Infect Dis. 2001;7(2):220-4.
17. Hunt TK. Surgical wound infections: an overview. Am J Med. 1981;70(3):712-8.
18. Mahat P, Manandhar S, Baidya R. Bacteriological profile of wound infection and antibiotic susceptibility pattern of the isolates. J Microbiol Exp. 2017;4(5):126.
19. Cooper R, Kingsley A, White R. Wound infection and microbiology: medical communications. Johnson & Johnson Medical, UK. 2003.
20. Zafar A, Anwar N, Ejaz H. Bacteriology of infected wounds–A study conducted at children’s hospital Lahore. Biomedica. 2008;24:71-4.
21. Wariso BA, Nwachukwu CO. A survey of common pathogens in wound in patients at the University of Port Harcourt Teaching

Hospital (UPTH), Port Harcourt. West African journal of medicine. 2003;22(1):50-4.

22. Meier K, Nanney LB. Emerging new drugs for wound repair. Expert Opin Emerg Drugs. 2006;11(1):23-37.
23. Ohalete CN, Obi RK, Emea Koroha MC. Bacteriology of different wound infection and their antimicrobial susceptibility patterns in Imo state Nigeria. World J Pharm Pharm Sci. 2012;1(3):1155-72.
24. Rasmussen BA, Bush K. Carbapenem-hydrolyzing beta-lactamases. Antimicrobial agents and chemotherapy. 1997;41(2):23-223.
25. Bradford PA. What's New in beta-lactamases? Curr Infect Dis Rep. 2001;3(1):13-9.
26. Weinstein MP, Patel JB, Campeau S, Eliopoulos GM, Galas MF, Humphries RM, et al. Performance standards for Antimicrobial susceptibility testing. Clinical Laboratory Standard Institute. 2018;28:M100-S28.
27. Vincent JL, Bihari DJ, Suter PM, Bruining HA, White J, Nicolas-Chanoin MH, et al. The prevalence of nosocomial infection in intensive care units in Europe. Results of the European Prevalence of Infection in Intensive Care (EPIC) Study. EPIC International Advisory Committee. JAMA. 1995;274(8):639-44.
28. World Health Organization; WHO South-East Asia Region: India Statistics Summary (2002-present). India.
29. Berríos-Torres SI. Evidence-Based Update to the U.S. Centers for Disease Control and Prevention and Healthcare Infection Control Practices Advisory Committee Guideline for the Prevention of Surgical Site Infection: Developmental Process. Surg Infect (Larchmt). 2016;17(2):256-61.
30. Kang SH, Yoo JH, Yi CK. The efficacy of postoperative prophylactic antibiotics in orthognathic surgery: a prospective study in Le Fort I osteotomy and bilateral intraoral vertical ramus osteotomy. Yonsei Med J. 2009;50(1):55-9.
31. Alamrew K, Tadesse TA, Abiye AA, Shibeshi W. Surgical Antimicrobial Prophylaxis and Incidence of Surgical Site Infections

at Ethiopian Tertiary-Care Teaching Hospital. Infect Dis (Auckl). 2019;12:1178633719892267.

32. Khan AKA, P VM, Rashed MR, Banu G. A Study on the Usage Pattern of Antimicrobial Agents for the Prevention of Surgical Site Infections (SSIs) in a Tertiary Care Teaching Hospital. J Clin Diagn Res. 2013;7(4):671-4.
33. Munckhof W. Antibiotics for surgical prophylaxis. Aust Prescr. 2005;28:38-40.
34. Hammad MA, AL-Akhali KM, Mohammed AT. Evaluation of surgical antibiotic prophylaxis in aseer area hospitals in kingdom of Saudi Arabia. J Phys Clin Sci. 2013;6:1-7.
35. Cornaglia G, Fighting infections due to multidrug-resistant Gram-positive pathogens. Clin Microbiol Infect. 2009;15:209-11.
36. Tan TT. Future" threat of Gram-negative resistance in Singapore. Ann Acad Med Singapore. 2008;37(10):884-90.
37. Arias CA, Murray BE. Antibiotic-resistant bugs in the 21st century-a clinical super-challenge. New England Journal of Medicine. 2009;360(5):439-43.
38. Kumarasamy KK, Toleman MA, Walsh TR, Bagaria J, Butt F, Balakrishnan R, et al. Emergence of a new antibiotic resistance mechanism in India, Pakistan, and the UK: a molecular, biological, and epidemiological study. The Lancet infectious diseases. 2010;10(9):597-602.
39. Bradford PA. Extended-spectrum beta-lactamases in the 21st century: characterization, epidemiology, and detection of this important resistance threat. Clin Microbiol Rev. 2001;14(4):933-51.
40. European Centre for Disease Prevention and Control. Systematic review of the effectiveness of infection control measures to prevent the transmission of extended-spectrum beta-lactamase-producing Enterobacteriaceae through cross-border transfer of patients. Stockholm: ECDC. 2014:1-57.
41. Morosini MI, García-Castillo M, Coque TM, Valverde A, Novais A, Loza E, et al. Antibiotic coresistance in extended-spectrum-beta-

lactamase-producing Enterobacteriaceae and in vitro activity of tigecycline. Antimicrob Agents Chemother. 2006;50(8):2695-9.

42. Cantón R, Novais A, Valverde A, Machado E, Peixe L, Baquero F, et al. Prevalence and spread of extended-spectrum beta-lactamase-producing Enterobacteriaceae in Europe. Clin Microbiol Infect. 2008;14:144-53.
43. Bush K, Jacoby GA, Medeiros AA. A functional classification scheme for beta-lactamases and its correlation with molecular structure. Antimicrob Agents Chemother. 1995;39(6):1211-33.
44. Arora S, Bal M. AmpC beta-lactamase producing bacterial isolates from Kolkata hospital. Indian J Med Res. 2005;122(3):224-33.
45. Paterson DL, Ko WC, Von Gottberg A, Mohapatra S, Casellas JM, Goossens H, et al. International prospective study of Klebsiella pneumoniae bacteremia: implications of extended-spectrum beta-lactamase production in nosocomial Infections. Ann Intern Med. 2004;140(1):26-32.
46. Livermore DM. β-Lactamases in laboratory and clinical resistance. Clin Microbiol Rev. 1995;8:557-84.
47. Barthélémy M, Peduzzi J, Labia R. Distinction entre les structures primaires des beta-lactamases TEM-1 et TEM-2 [Distinction between the primary structures of TEM-1 and TEM-2 beta-lactamases]. Ann Inst Pasteur Microbiol. 1985;136A(3):311-21.
48. Sougakoff W, Goussard S, Courvalin P, The TEM-3 β-lactamase, which hydrolyzes broad-spectrum cephalosporins, is derived from the TEM-2 penicillinase by two amino acid substitutions. FEMS Microbiol Lett. 1988;56:343-48.
49. Bonnet R, Champs CD, Sirot D, Chanal C, Labia R, Sirot J. Diversity of TEM mutants in Proteus mirabilis. Antimicrob Agents Chemother. 1999;43:2671-77.
50. Marchandin H, Carriere C, Sirot D, Jean-Pierre H, Darbas H. TEM-24 produced by four different species of Enterobacteriaceae, including Providentia rettgeri, in a single patient. Antimicrob Agents Chemother. 1999;43:2069-73.

51. Morosini MI, Canton R, Martinez-Beltran J, Negri MC, Perez-Diaz JC, Baquero F, et al. New extended spectrum TEM type β-lactamase from Salmonella enterica subsp enterica isolated in nosocomial outbreak. Antimicrob Agents Chemother. 1995;39:458-61.
52. PaltzkillT, Thomson KS, Sanders CC, Moland ES, Huang W, Milligan TW. New variant of TEM-10 β-lactamase gene produced by a clinical isolate of Proteus mirabilis. Antimicrob Agents Chemother. 1995;39:1199-1200.
53. Perilli M, Segatore B, Massis MRD, Ricco ML, Bianchi C, Zollo A, et al. TEM-72, a new extended spectrum β-lactamase detected in Proteua mirabilis and Morganella morganii in Italy. Antimicrob Agents Chemother. 2000;44:2537-39.
54. Huletsky A, Knox JR, Levesque RC. Role of Ser-238 and Lys-240 in hydrolysis of 3rd-generation cephalosporins by SHV-type beta-lactamases probed by site-directed mutagenesis and 3-dimentional modelling. J Biol Chem.1993;268:3690-97.
55. Fiett J, Pałucha A, Miaczyńska B, Stankiewicz M, Przondo-Mordarska H, Hryniewicz W, et al. A novel complex mutant beta-lactamase, TEM-68, identified in a Klebsiella pneumoniae isolate from an outbreak of extended-spectrum beta-lactamase-producing Klebsiellae. Antimicrob Agents Chemother. 2000;44(6):1499-505.
56. Neuwirth C, Madec S, Siebor E, Pechinot A, Duez JM, Pruneaux M, et al. TEM-89 beta-lactamase produced by a Proteus mirabilis clinical isolate: new complex mutant (CMT 3) with mutations in both TEM-59 (IRT-17) and TEM-3. Antimicrob Agents Chemother. 2001;45(12):3591-4.
57. Poirel L, Mammeri H, Nordmann P. TEM-121, a novel complex mutant of TEM-type beta-lactamase from Enterobacter aerogenes. Antimicrob Agents Chemother. 2004;48(12):4528-31.
58. Sirot D, Recule C, Chaibi EB, Bret L, Croize J, Chanal-Claris C, et al. A complex mutant of TEM-1 beta-lactamase with mutations encountered in both IRT-4 and extended-spectrum TEM-15,

produced by an Escherichia coli clinical isolate. Antimicrob Agents Chemother. 1997;41(6):1322-5.

59. Rahbar M, Monnavar KM, Vatan KK, Fadaei-haq A, Shakerian F. Carbapenem resistance in gram-negative bacilli isolates in an Iranian 1000-bed Tertiary Hospital. Pak J Med Sci. 2008;24(4):537-40.
60. Shivappa SG, Shankaregowda R, Rao RM, Rajeshwari KG, Kulkarni M. Detection of Metallo-beta lactamase production in clinical isolates of Nonfermentative Gram negative bacilli. IOSR-JDMS. 2015;14(10):43-8.
61. Motayo BO, Akinduti PA, Adeyakinu FA, Okerentugba PO, Nwanze JC, Onoh CC, et al. Antibiogram and plasmid profiling of carbapenemase and extended spectrum Beta-lactamase (ESBL) producing Escherichia coli and Klebsiella pneumoniae in Abeokuta, South western, Nigeria. African health sciences. 2013;13(4):1091-7.
62. Doddaiah V, Anjaneya D. Prevalence of ESBL, AmpC and carbapenemase among Gram negative bacilli isolated from clinical specimens. Am J Life Sci. 2014;2(2):76-81.
63. Wadekar MD, Anuradha K, Venkatesha D. Phenotypic detection of ESBL and MBL in clinical isolates of Enterobacteriaceae. Int J Curr Res Aca Rev. 2013;1(3):89-95.
64. Kumar M, Dutta R, Saxena S, Singhal S. Evaluation of Different Phenotypic Methods to Detect ESBL and MBL Production in Escherichia coli and Klebsiella Species with Detection of NDM-1 by PCR. International Journal of Microbio Research. 2015;6:20-6.
65. Anoar KA, Ali FA, Omer SA. Phenotypic Detection of Metallo-lactamase Enzyme among Gram Negative Bacteria Isolated From Burn Patients In Sulaimani, Iraq. Int. J. Curr. Microbiol. App. Sci. 2014;3(3):315-25.
66. Singhal S, Mathur T, Khan S, Upadhyay DJ, Chugh S, Gaind R, et al. Evaluation of methods for AmpC beta-lactamase in gram negative clinical isolates from tertiary care hospitals. Indian journal of medical microbiology. 2005;23(2):120-4.

67. Oberoi L, Singh N, Sharma P, Aggarwal A. ESBL, MBL and Ampc β lactamases producing superbugs–Havoc in the Intensive Care Units of Punjab India. Journal of clinical and diagnostic research: JCDR. 2013;7(1):70-3.
68. Mirza S, Jadhav S, Misra RN, Das NK. Coexistence of β-Lactamases in Community-Acquired Infections in a Tertiary Care Hospital in India. International Journal of Microbiology. 2019;2019.
69. Pandya NP, Prajapati SB, Mehta SJ, Kikani KM, Joshi PJ. Evaluation of various methods for detection of metallo-β-lactamase (MBL) production in gram negative bacilli. Int J Biol Med Res. 2011;2(3):775-7.
70. Kamalraj M, Kaviarasan K, Padmapriya G. Phenotypic detection of ESBL and MBL in clinical isolates of nonfermenters. Indian J Basic Appl Med Res. 2015;4(4):470-5.
71. Kaur N, Kaur A, Singh S. Prevalence of ESBL and MBL producing gram negative isolates from various clinical samples in a tertiary care hospital. Int J Curr Microbiol Appl Sci. 2017;6(4):1423-30.
72. Wong ES. Surgical site infections. In: Mayhall CG, editor. Hospital epidemiology and infection control. 1st ed. USA: Williams and Wilkins; 1996;1:154-74.
73. Setty NK, Nagaraja MS, Nagappa DH, Giriyaiah CS, Gowda NR, Naik RD. A study on Surgical Site Infections (SSI) and associated factors in a government tertiary care teaching hospital in Mysore, Karnataka. International Journal of Medicine and Public Health. 2014;4(2):171-5.
74. Bessa LJ, Fazii P, Di Giulio M, Cellini L. Bacterial isolates from infected wounds and their antibiotic susceptibility pattern: some remarks about wound infection. Int Wound J. 2015;12(1):47-52.
75. Awari A, Nighute S, Deorukhkar S. Surgical Wound Infections: A Prospective Hospital Based Study. 2011;5(7):1367-70.
76. Babu G, Balamuruganvelu S, Reddy SV, Srikumar R, Chandru M, Shree BE, et al. Bacteriological Profile of Wounds Due to Occupational Injuries among Fisherman Community of Puducherry,

India. Journal of Clinical & Diagnostic Research. 2018;12(10):DC11-5.

77. Ukey P, Chaurasia SR, Gharde VG, Sangale AR. Microbiological Analysis of Skin and Soft Tissue Infections and their Antibiogram in a Tertiary Care Teaching Hospital in Mumbai, India. Journal of Clinical & Diagnostic Research. 2020;14(1):DC17-20.
78. Upadhyay S, Sengupta S, Mitchell KF, Safdar N. Multidrug Resistance in an Emerging Group of Enterobacteriaceae: A Retrospective Analysis at a Tertiary Hospital in Haryana, India. Journal of Clinical & Diagnostic Research. 2019;13(11):DC01-3.
79. Ramakrishnan K, Kali A, Sah S, Pagal S, Kenchappa P, Seetha KS. Molecular Profile of Emerging Multidrug Resistant Klebsiella pneumoniae Clinical Isolates from Southern India. Journal of Clinical & Diagnostic Research. 2019;13(3):DC01-6.
80. Khan DM, Moosabba MS, Rao IV. Changing antibiogram profile of Acinetobacter baumannii in diabetic and non-diabetic foot ulcer infections. Journal of Clinical and Diagnostic Research. 2018;12(5):DC12-6.
81. Shettigar S, Shenoy S, Bhat S, Rao P. Microbiological Profile of Deep Tissue and Bone Tissue in Diabetic Foot Osteomyelitis. Journal of Clinical & Diagnostic Research. 2018;12(6):DC20-2.
82. Agarwal S, Kakati B, Khanduri S, Gupta S. Emergence of carbapenem resistant non-fermenting gram-negative bacilli isolated in an ICU of a tertiary care hospital. Journal of clinical and diagnostic research: JCDR. 2017;11(1):DC04-7.
83. Roopa C, Deepali V. Pus Culture Isolates and Their Antibiotic Sensitivity at A Tertiary Care Hospital In Hyderabad Karnataka Region article. International Journal of Medical Microbiology and Tropical Diseases. 2017;3(4):140-5.
84. Collee JG, Marr W. Specimen collection, culture containers and media. Mackie & McCartney Practical Medical Microbiology. 1996;2:85-111.
85. Magiorakos AP, Srinivasan A, Carey RB, Carmeli Y, Falagas ME, Giske CG, et al. Multidrug-resistant, extensively drug-resistant and

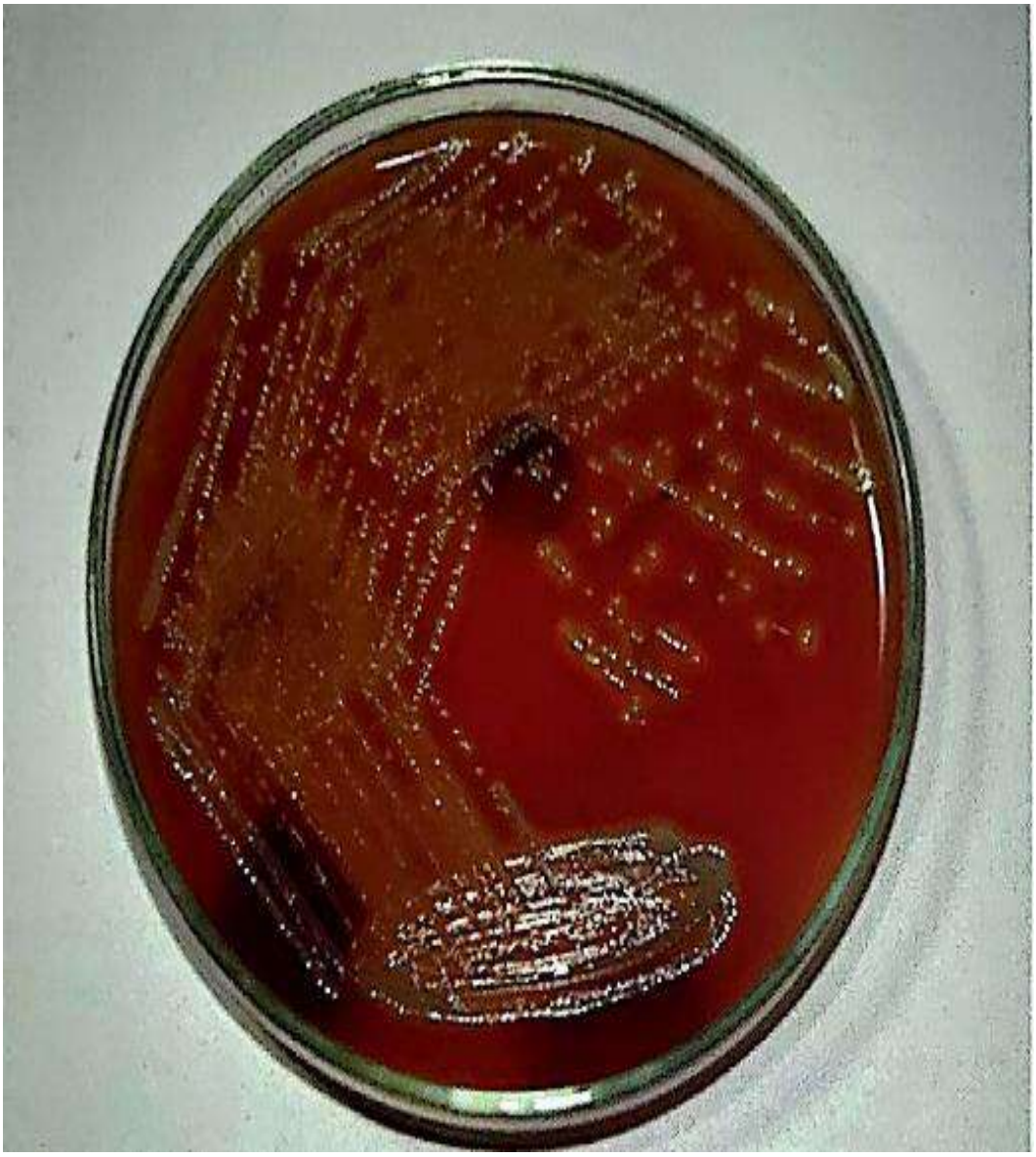
pandrug-resistant bacteria: an international expert proposal for interim standard definitions for acquired resistance. Clin Microbiol Infect. 2012;18(3):268-81.

86. Black JA, Moland ES, Thomson KS. AmpC disk test for detection of plasmid-mediated AmpC beta-lactamases in Enterobacteriaceae lacking chromosomal AmpC beta-lactamases. J Clin Microbiol. 2005;43(7):3110-3.
87. Yong D, Lee K, Yum JH, Shin HB, Rossolini GM, Chong Y. Imipenem-EDTA disk method for differentiation of metallo-beta-lactamase-producing clinical isolates of Pseudomonas spp. and Acinetobacter spp. J Clin Microbiol. 2002;40(10):3798-801.
88. Geubbels EL, Mintjes-de Groot AJ, van den Berg JM, de Boer AS. An operating surveillance system of surgical-site infections in The Netherlands: results of the PREZIES national surveillance network. Preventie van Ziekenhuisinfecties door Surveillance. Infect Control Hosp Epidemiol. 2000;21(5):311-8.
89. Sonawane J, Kamath N, Swaminathan R, Dosani K. Bacterial profile of surgical site infections and their antibiograms in a Tertiary Care Hospital in Navi Mumbai. Bombay Hospital Journal. 2010;52(3):358-61.
90. Ranjan KP, Ranjan N, Bansal SK, Arora DR. Prevalence of Pseudomonas aeruginosa in post-operative wound infection in a referral hospital in Haryana, India. Journal of laboratory physicians. 2010;2(2):74.
91. Srinivasan S, Vartak AM, Patil A, Saldanha J. Bacteriology of the burn wound at the Bai Jerbai Wadia hospital for children, Mumbai, India—A 13-year study, Part I-Bacteriological profile. Indian journal of plastic surgery: official publication of the Association of Plastic Surgeons of India. 2009;42(2):213-8.
92. Dhar S, Saraf R, Singh K, Raina B. Microbiological profile of chronic burn wounds among patients admitted in burn unit. JK science. 2007;9(4):182-5.

93. Misra RN, Chander Y, Debata NK, Ohri VC. Antibiotic resistance pattern of isolates from wound and soft tissue infections. Med J Armed Forces India. 2000;56(3):205-8.
94. Fantahun B, Bayeh A, Atenaf A, Belay A. Bacterial isolates from wound infections, Ethiopia Journal of Health sciences. 2009;19(3):173-7.
95. Peña C, Pujol M, Ardanuy C, Ricart A, Pallares R, Liñares J, et al. Epidemiology and successful control of a large outbreak due to Klebsiella pneumoniae producing extendedspectrum β-lactamases. Antimicrobial agents and chemotherapy. 1998;42(1):53-8.
96. Kumar MS, Lakshmi V, Rajagopalan R. Occurrence of extended spectrum beta-lactamases among Enterobacteriaceae spp. isolated at a tertiary care institute. Indian journal of medical microbiology. 2006;24(3):208-11.
97. Laghawe A, Jaitly N, Thombare V. The simultaneous detection of the ESBL and the AmpC β-lactamases in gram negative bacilli. J Clin Diagn Res. 2012;6:660-3.
98. Jain A, Mondal R. Prevalence & antimicrobial resistance pattern of extended spectrum b-lactamase producing Klebsiella spp isolated from cases of neonatal septicaemia. Indian Journal of Medical Research. 2007;125(1):89-94.
99. Harakuni S, Karadesai SG, Mutnal MB, Metgud SC. Prevalence of extended spectrum β-lactamase-producing clinical isolates of Klebsiella pneumoniae in intensive care unit patients of a tertiary care hospital. Ann Trop Med Public Health. 2011;4:96-8.
100. Bandekar N, Vinodkumar CS, Basavarajappa KG, Prabhakar PJ, Nagaraj P. Beta lactamases mediated resistance amongst gram negative bacilli in burn infection. Int J Biol Med Res. 2011;2(3):766-70.
101. Flaherty JP, Weinstein RA. Nosocomial infection caused by antibiotic-resistant organisms in the intensive-care unit. Infection Control & Hospital Epidemiology. 1996;17(4):236-48.
102. Subha A, Devi VR, Ananthan S. AmpC beta-lactamase producing multidrug resistant strains of Klebsiella spp. & Escherichia coli

isolated from children under five in Chennai. Indian Journal of Medical Research. 2003;117:13-8.

103. Amenu D, Belachew T, Araya F. Surgical site infection rate and risk factors among obstetric cases of Jimma University specialized hospital. Southwest Ethiopia Ethiop J Health Sci. 2011;21(2):91–100.
104. Fadnis MP, Desai S, Kagal ABR. Original article surgical site infections : incidence and risk factors in a tertiary care hospital. Western. 2012;3(2):152–61.
105. Ducel G, Fabry J, Nicolle L. Prevention of hospital-acquired infections. A practical guide. World Health Organization. 2002:2:1-64.
106. Lilani SP, Jangale N, Chaudhary A, Daver GB. Surgical site infections in clean and contaminated surgeries. Indian J Med Microbiol. 2005;23(4):249-52.
107. Awan MS, Dhari FJ, Laghari AA, Bilal F, Khaskheli NM. Surgical Site Infection In Elective Surgery. J of Surg Pakistan (International). 2011;16(1):33-7.
108. Tourmousoglou CE, Yiannakopoulou EC, Kalapothaki V, Bramis J, St Papadopoulos J. Surgical-site infection surveillance in general surgery: a critical issue. J Chemother. 2008;20(3):312-8.
109. Narula H, Chikara G, Gupta P. A prospective study on bacteriological profile and antibiogram of postoperative wound infections in a tertiary care hospital in Western Rajasthan. J Family Med Prim Care. 2020;9:1927-34.
110. Alexander JW, Solomkin JS, Edwards MJ. Updated recommendations for control of surgical site infections. Ann Surg 2011;253:1082-93.
111. Kasukurthy LR, Bathala M, Bacteriological profile of Surgical Site Infections (SSIs) - a study in a tertiary care hospital. J Evid Based Med Healthc. 2020;7(32):1612-6.



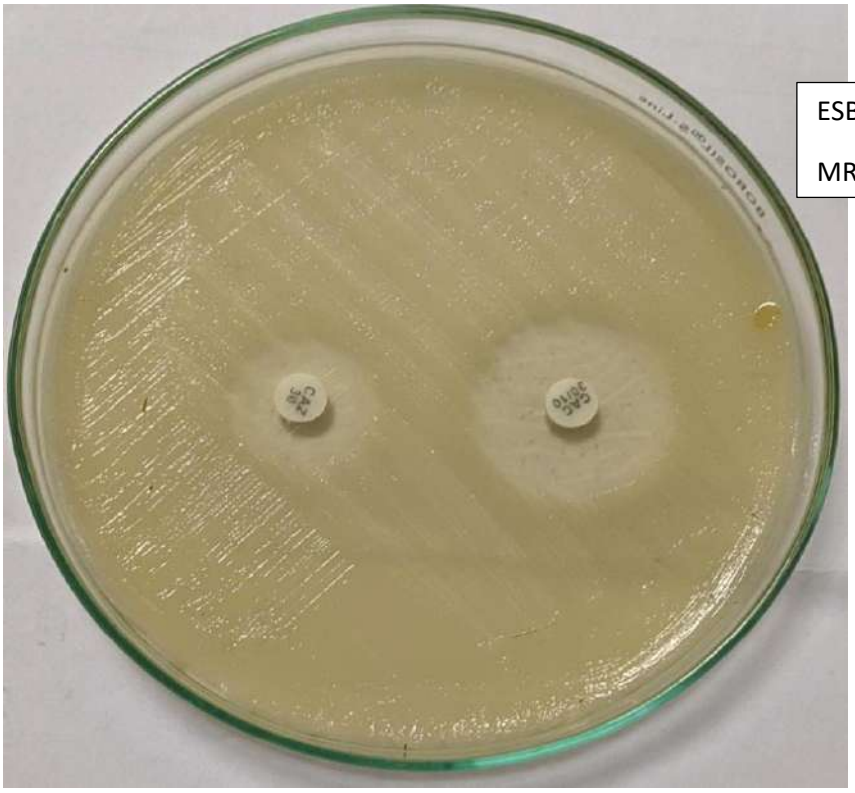
Blood agar showing growth of S. aureus

Mac Conkey’s Agar showing growth of E.coli

VITEK-2 system

VITEK-2 Identification & AST cards

Screening test for ESBL

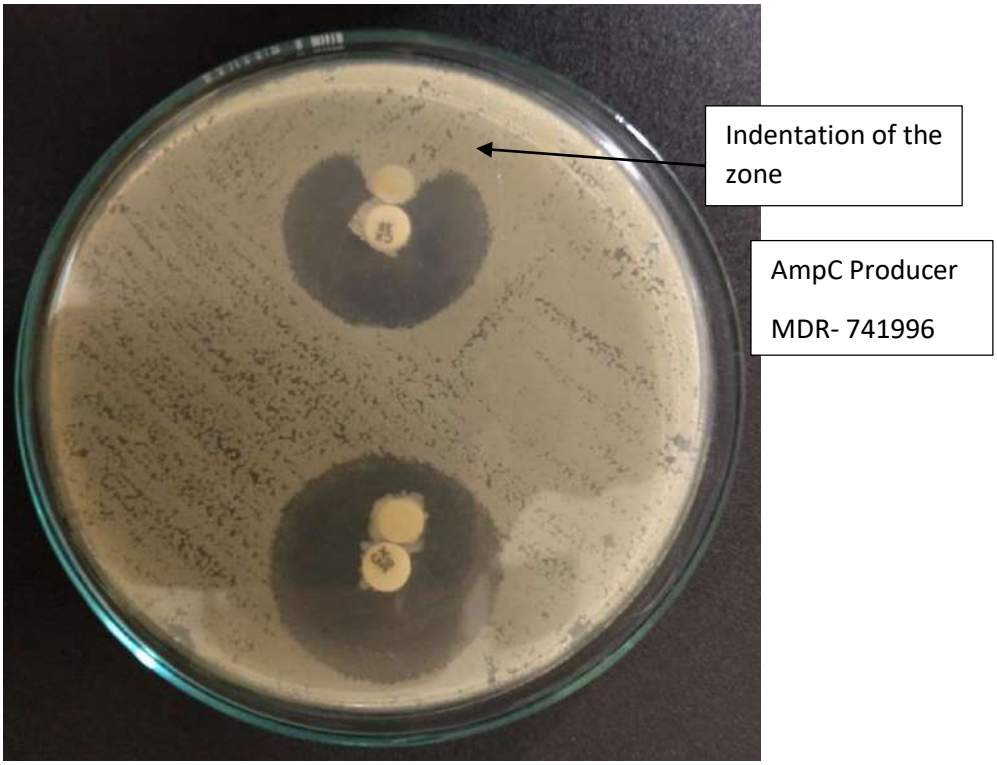


ESBL Producer

MRD: 694884

Double disk diffusion test for ESBL

Screening test for Amp C production



Confirmation of AmpC production

Screening for MBL production

MBL Producer

MRD: 723349

Imipenem EDTA double disk method

Clean wound

Dirty/Infected wound

s.no:	NAME	MRD NO	AGE	SEX	DATE OF RECEIVING SAMPLE	loc	OUTCOME	LAB NO	SAMPLE	NUMBER OF DAYS	DATE OF ADMISSION	DATE OF DISCHARGE	SITE OF WOUND	CLASSIFICATION	TYPE	SURGERY DONE INSIDE
1	N.G	837884	19	M	10/31/2019	SG	DISCHARGED	10466	Pus	11	10/28/2019	11/8/2019	Abdomen	clean contaminated	Post op	Appendicectomy
2	P.S	711625	52	M	11/2/2019	SG	DISCHARGED	10531	W/S	39	11/2/2019	12/11/2019	Abdomen	contaminated	Post op	Cholecystectomy
3	S.S	808601	54	F	11/2/2019	SG	DISCHARGED	10515	Tissue	12	11/1/2019	11/12/2019	Foot	dirty	Diabetic ulcer	Debridement with amputation
4	H.C	445467	66	M	6/28/2019	SG	DISCHARGED	6110	W/S	9	6/23/2019	7/1/2019	Foot	dirty	Diabetic ulcer	NA
5	B.S	741197	71	M	7/5/2019	SG	DISCHARGED	6328	Tissue	37	6/3/2019	7/9/2019	Leg	clean	Traumatic wound	Tendon repair with nerve repair
5	B.S	741197	71	M	7/5/2019	SG	DISCHARGED	6328	Tissue	37	6/3/2019	7/9/2019	Leg	clean	Traumatic wound	Tendon repair with nerve repair
6	J.K	761109	75	F	7/5/2019	MED	DISCHARGED	6329	Pus	5	7/4/2019	7/8/2019	Gluteal region	dirty	Abscess	I & D
7	M.L	723349	44	M	7/5/2019	SICU	DISCHARGED	6330	Pus	3	7/4/2019	7/6/2019	Abdomen	contaminated	Post op	Hemicolectomy
8	R.K	281366	52	F	7/6/2019	SICU	DISCHARGED	6863	Tissue	16	7/3/2019	7/18/2019	Oesophagus	clean contaminated	Post op	VATS
9	K.K	653239	63	F	7/7/2019	SG	DISCHARGED	6376	W/S	11	7/3/2019	7/13/2019	Breast	clean	Post op	MRM
10	B.S	37727	66	M	7/7/2019	SG	DISCHARGED	6382	Tissue	15	7/5/2019	7/19/2019	Foot	clean contaminated	Post op	SSG
10	B.S	37727	66	M	7/7/2019	SG	DISCHARGED	6382	Tissue	15	7/5/2019	7/19/2019	Foot	clean contaminated	Post op	SSG
11	G.S	761054	80	M	7/8/2019	SG	DISCHARGED	6411	Tissue	8	7/4/2019	7/11/2019	Foot	dirty	Diabetic ulcer	NA
12	S.K	758133	60	F	7/8/2019	SG	DISCHARGED	6413	Tissue	23	6/30/2019	7/22/2019	Back	dirty	Decubitus ulcer	NA
13	L.K	522293	51	F	7/8/2019	MED	DISCHARGED	6416	W/S	6	7/8/2019	7/13/2019	Toe	dirty	Diabetic ulcer	Amputation of toe
14	T.R	761258	49	F	7/8/2019	SG	DISCHARGED	6423	Tissue	7	7/5/2019	7/11/2019	Prostrate	clean contaminated	Abscess	TURP, Deroofing of prostatic abscess
15	H.K	739205	65	F	7/9/2019	MED	DISCHARGED	6448	W/S	9	7/8/2019	7/16/2019	Chest	clean	Post op	CABG
16	H.S	762451	35	M	7/8/2019	SG	DISCHARGED	6388, 6453	Pus	25	7/6/2019	7/30/2019	Abdomen	contaminated	Post op	Ileostomy
17	N.S	763543	60	M	7/9/2019	SG	DISCHARGED	6455	Pus	13	7/8/2019	7/20/2019	Scrotum	dirty	Abscess	I & D
18	V.K	762754	62	M	7/9/2019	MED	DISCHARGED	6462	Pus	9	7/9/2019	7/17/2019	Perianal region	dirty	Abscess	I & D
19	S.K	764593	70	F	7/10/2019	MED	DISCHARGED	6488	Pus	20	7/10/2019	7/30/2019	Foot	dirty	Diabetic ulcer	I & D
20	M	764305	40	F	7/11/2019	MED	DISCHARGED	6505	Pus	2	7/10/2019	7/11/2019	Abdomen	clean contaminated	Post op	Appendicectomy
21	L.K	700308	30	F	7/11/2019	SG	DISCHARGED	6517	W/S	23	7/2/2019	7/24/2019	Abdomen	contaminated	Post op	Cholecystectomy
22	K.S	763241	61	M	7/12/2019	SG	DISCHARGED	6534	Pus	17	7/9/2019	7/25/2019	Abdomen	contaminated	Post op	Cholecystectomy
23	D.S	741628	71	M	7/12/2019	SG	DISCHARGED	6535	W/S	23	6/30/2019	7/22/2019	Abdomen	clean	Post op	Hernia repair
24	S.V	751218	60	M	7/11/2019	SG	DISCHARGED	6557	Tissue	10	6/19/2019	6/29/2019	Foot	dirty	Diabetic ulcer	Debridement
25	J.K	764192	61	F	7/12/2109	SG	DISCHARGED	6560	W/S	8	7/10/2019	7/17/2019	Breast	clean	Post op	MRM
26	S.R	764271	54	F	7/12/2019	SG	DISCHARGED	6564	Pus	10	7/7/2019	7/17/2019	Leg	contaminated	Post op	Fistulectomy
27	R.K	762543	35	F	7/12/2019	SG	DISCHARGED	6559	Pus	40	7/7/2019	8/21/2019	Pancreas	contaminated	Post op	Pancreatic necrosectomy
28	B.S	763291	56	M	7/12/2019	SG	DISCHARGED	6561	Pus	26	7/8/2019	7/19/2019	Leg	dirty	Leg ulcer	Fasciotomy
29	D.R	764116	65	M	7/12/2019	MED	DISCHARGED	6562	W/S	17	7/10/2019	7/26/2019	Foot	dirty	Diabetic ulcer	Debridement
29	D.R	764116	65	M	7/12/2019	MED	DISCHARGED	6562	W/S	17	7/10/2019	7/26/2019	Foot	dirty	Diabetic ulcer	Debridement
30	S.S	765170	47	M	7/12/2019	SG	DISCHARGED	6565	Tissue	10	7/11/2019	7/20/2019	Leg	contaminated	Post op	Implant removal with muscle repair
31	B.G	133913	77	F	7/13/2019	SG	DISCHARGED	6592	W/S	10	7/13/2019	7/22/2019	Foot	dirty	Diabetic ulcer	Debridement
32	R.S	524225	52	M	7/13/2019	SG	DISCHARGED	6601	Tissue	7	7/12/2019	7/18/2019	Foot	dirty	Diabetic ulcer	Debridement
32	R.S	524225	52	M	7/13/2019	SG	DISCHARGED	6601	Tissue	7	7/12/2019	7/18/2019	Foot	dirty	Diabetic ulcer	Debridement
33	J.S	766934	67	M	7/13/2019	SG	DISCHARGED	6609	Tissue	10	7/13/2019	7/23/2019	Foot	dirty	Diabetic ulcer	Debridement
34	K.S	767033	46	M	7/14/2019	SG	DISCHARGED	6630	Pus	15	7/13/2019	7/27/2019	Abdomen	clean contaminated	Post op	Laprotomy with resection and anastomosis small bowel
35	B.S	765585	65	M	7/15/2019	MED	DISCHARGED	6634	W/S	14	7/11/2019	7/24/2019	Leg	dirty	Diabetic ulcer	Debridement
36	D.S	766990	85	M	7/14/2019	SG	DISCHARGED	6635	Tissue	2	7/13/2019	7/14/2019	Foot	dirty	Diabetic ulcer	Below knee amputation
37	R.S	122545	65	M	7/15/2019	SG	DISCHARGED	6636	W/S	11	7/12/2019	7/22/2019	Arm	dirty	Traumatic wound	NA
38	S.S	753636	28	F	7/15/2019	MED	DISCHARGED	6647	W/S	29	6/26/2019	7/25/2019	Leg	contaminated	Leg ulcer	Fasciotomy
39	V.S	750895	24	M	7/15/2019	SG	DISCHARGED	6652	W/S	41	6/19/2019	7/30/2019	Chest	contaminated	Traumatic wound	Flapping + Ileostomy
40	K.A	760351	65	M	7/15/2019	SG	DISCHARGED	6664	W/S	27	7/3/2019	7/29/2019	Abdomen	contaminated	Post op	Exploratory Laprotomy
41	N.S	763543	60	M	7/15/2019	SG	DISCHARGED	6669	Tissue	13	7/8/2019	7/20/2019	Scrotum	dirty	Abscess	I & D
42	R.P	472487	65	M	7/19/2019	SG	DISCHARGED	6807	Pus	14	7/19/2019	8/1/2019	Abdomen	dirty	Abscess	Debridement
43	P.S	767171	79	M	7/20/2019	MED	DISCHARGED	6827	Pus	12	7/14/2019	7/25/2019	Abdomen	contaminated	Post op	Exploratory Laprotomy
44	J.K	770494	20	F	7/20/2019	SG	DISCHARGED	6838	W/S	12	7/19/2019	7/30/2019	Neck	clean	Post op	Cervical exploration B/L
45	S.K	764593	70	F	7/22/2019	MED	DISCHARGED	6883	Tissue	21	7/10/2019	7/30/2019	Leg	dirty	Leg ulcer	Debridement
46	S.S	767107	65	M	7/22/2019	MED	DISCHARGED	6884	Pus	16	7/14/2019	7/29/2019	Foot	dirty	Abscess	I & D
47	B.S	670940	48	F	7/22/2019	SG	DISCHARGED	6869	Tissue	18	7/17/2019	8/3/2019	Foot	dirty	Diabetic ulcer	Below knee amputation
48	K.S	749095	70	F	7/22/2019	SG	DISCHARGED	6870	W/S	43	7/2/2019	8/13/2019	Back	dirty	Diabetic ulcer	Debridement
49	A.S	771674	62	F	7/23/2019	MED	DISCHARGED	6902	W/S	8	7/23/2019	7/30/2019	Foot	dirty	Diabetic ulcer	Debridement
50	G.S	761054	80	M	7/23/2019	MED	DISCHARGED	6923	W/S	10	7/23/2019	8/1/2019	Foot	dirty	Diabetic ulcer	I & D
51	D.M	771938	34	M	7/23/2019	MED	DISCHARGED	6927	Tissue	4	7/22/2019	7/25/2019	Pancreas	dirty	Post op	Pancreatic necrosectomy
52	P.K	772800	45	M	7/23/2019	SG	DISCHARGED	6928	Tissue	11	7/22/2019	8/1/2019	Leg	clean	Post op	Hemiarthroplasty
53	A.K	775365	47	F	7/26/2019	MED	DISCHARGED	7016	W/S	11	7/26/2019	8/5/2019	Foot	dirty	Diabetic ulcer	Debridement
54	A.S	774447	26	M	7/23/2019	SG	DISCHARGED	7021	Pus	10	7/25/2019	8/3/2019	Appendix	clean contaminated	Post op	Appendicectomy
55	K.S	767592	68	M	7/26/2019	SG	DISCHARGED	7023	Tissue	9	7/25/2019	8/2/2019	Leg	clean contaminated	Traumatic wound	Distal ring fixator application on tibia
56	K.K	755897	51	F	7/26/2019	MED	DISCHARGED	7025	Pus	17	7/25/2019	8/11/2019	Pancreas	contaminated	Post op	Pancreatic necrosectomy
57	S.S	535617	76	M	7/26/2019	SG	DISCHARGED	7026	Tissue	21	7/22/2019	8/11/2019	Liver	contaminated	Post op	Hepatojujenostomy
58	U.S	474651	65	F	7/27/2019	MED	DISCHARGED	7038	Tissue	1	7/27/2019	7/27/2019	Gall Bladder	contaminated	Post op	Cholecystectomy
59	J.A	775079	55	M	7/27/2019	MED	DISCHARGED	7040	Pus	9	7/25/2019	8/2/2019	Shoulder	dirty	Post op	I & D
60	S.S	771715	55	M	7/27/2019	SG	DISCHARGED	7055	Tissue	24	7/20/2019	8/12/2019	Pancreas	contaminated	Post op	Pancreatic necrosectomy
61	N.R	776571	74	F	7/27/2019	SG	DISCHARGED	7058	Tissue	7	7/27/2019	8/2/2019	leg	contaminated	Post op	Implant removal
62	R.K	553963	43	M	6/15/2019	SG	DISCHARGED	5728	Pus	87	4/16/2019	7/11/2019	Scrotum	dirty	Traumatic wound	Exploratory laprotomy
63	K.S	745203	30	M	6/10/2019	SG	DISCHARGED	5566	W/S	20	6/10/2019	6/30/2019	Back	clean	Traumatic wound	Lumbar fixation
64	J.K	694884	50	M	6/10/2019	SG	DISCHARGED	5584	Tissue	43	6/8/2019	6/20/2019	Head	clean	Traumatic wound	Flap decompression craniotomy
65	K.S	747251	68	F	6/16/2019	SG	DISCHARGED	5780	W/S	10	6/12/2019	6/21/2019	Foot	dirty	Diabetic ulcer	Debridement
66	C.S	747738	65	M	6/15/2019	MED	DISCHARGED	5747	Tissue	14	6/13/2019	6/26/2019	Foot	dirty	Diabetic ulcer	Below knee amputation
67	S	749784	65	M	6/18/2019	SG	DISCHARGED	5812	W/S	10	6/18/2019	6/27/2019	Foot	dirty	Diabetic ulcer	Below knee amputation
68	M.P	725839	39	M	6/15/2019	SG	DISCHARGED	5734	W/S	51	5/10/2019	6/29/2019	Back	contaminated	Traumatic wound	Exploration

s.no:	NAME	MRD NO	MANAGEMENT	SAMPLE	RISK FACTOR	DIAGNOSIS	HEMOGLOBIN	TLC	GRAM STAIN	NO OF ISOLATES	GROWTH	ORGANISM	AMP	AMC	CSL	TZP	TIC	CI	CAZ
1	N.G	837884	S	Pus	infection	appendicitis	10.2	13000	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
2	P.S	711625	S	W/S	infection	Cholecyctitis	11.5	4780	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
3	S.S	808601	S	Tissue	diabetes	Diabetic foot	9.8	15300	GNB	1	GNB	Escherichia coli	R	R	R	S	S	S	S
4	H.C	445467	M	W/S	diabetes	DM2 with post PTCA with ACS	11.2	11000	GNB, GNCB	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
5	B.S	741197	S	Tissue	prolonged hospital stay	RSA with fracture tibia	10.8	14000	GNB,GPB	2	GNB	Pseudomonas aeruginusa	R	R	S	R	R	R	S
5	B.S	741197	S	Tissue	prolonged hospital stay	RSA with fracture tibia	10.8	14000	GNB,GPB	2	GNB	Klebsiella pneumoniae	R	R	S	R	R	R	S
6	J.K	761109	S	Pus	immobilization	Gluteal abscess	10.2	15200	GPC, Pus cells	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
7	M.L	723349	S	Pus	immunosuppression	Subacute intestinal obstruction (SAIO) with ascending colon perforation	7.8	13000	GPC, GNCB, Pus cells	1	GNB	Escherichia coli	R	R	R	R	R	R	R
8	R.K	281366	S	Tissue	immunosuppression	VATS	9.9	10500	GNB, GNCB, Pus cells	1	GNB	Pseudomonas aeruginusa	R	R	S	R	R	R	S
9	K.K	653239	S	W/S	concurrent infection at another site	Ca Breast	10	15000	GPC, GNCB, Pus cells	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
10	B.S	37727	S	Tissue	vascular disease	SSG	9.8	11000	GNB	2	GNB	Pseudomonas aeruginusa	R	R	S	S	S	R	S
10	B.S	37727	S	Tissue	vascular disease	SSG	9.8	11000	GNB	2	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
11	G.S	761054	M	Tissue	diabetes	DM2 with Diabetic foot with AKI	12	12000	no m/o	1	GNB	Escherichia coli	R	R	R	R	R	R	R
12	S.K	758133	M	Tissue	immobilization	Old CVA with bed sore	10	13000	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
13	L.K	522293	S	W/S	diabetes	DM2 with CAD with HTN with Diabetic foot	9.2	10000	GNB	1	GNB	Klebsiella pneumoniae	R	S	S	S	R	S	R
14	T.R	761258	S	Tissue	obesity	Prostatic abscess	10.8	11000	GNB	1	GNB	Escherichia coli	R	S	S	S	R	R	R
15	H.K	739205	S	W/S	others	Post CABG	11	10900	GNB	1	GNB	Pseudomonas aeruginusa	R	R	S	S	S	R	S
16	H.S	762451	S	Pus	infection	Ileostomy with fever with intraabdominal collection	12	12800	GNB	1	GNB	Acinetobacter baumanii	R	R	S	R	R	R	R
17	N.S	763543	S	Pus	infection	scrotal abscess	11.2	10800	GPC, GNB, Pus cells	1	GNB	Enterobacter aerogenes	R	R	R	R	R	R	R
18	V.K	762754	S	Pus	infection	Perianal abscess	11.8	12000	GNB	1	GNB	Klebsiella pneumoniae	R	S	S	S	R	S	S
19	S.K	764593	S	Pus	diabetes	Cellulitis with diabetic foot Rt	10	13000	GNB	1	GNB	Klebsiella pneumoniae	R	R	S	S	R	R	S
20	M	764305	S	Pus	infection	Appendicitis	11	13000	GPC, GNB, Pus cells	1	GNB	Acinetobacter baumanii	R	R	S	S	S	R	R
21	L.K	700308	S	W/S	infection	Cholecystectomy	9	12000	GNB	1	GNB	Pseudomonas aeruginusa	R	R	S	R	S	R	R
22	K.S	763241	S	Pus	infection	cholecystitis	11	14000	GNB	1	GNB	Klebsiella pneumoniae	R	S	S	S	R	R	R
23	D.S	741628	S	W/S	prolonged pre-op length of stay	Umblical hernia	12	12000	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
24	S.V	751218	S	Tissue	diabetes	diabetic foot rt	11.2	10800	GNB	1	GNB	Escherichia coli	R	R	S	S	R	S	R
25	J.K	764192	S	W/S	immunosuppression	C.A Breast	8.7	12800	GPC	1	GNB	Elizabeth meningoseptica	R	R	S	R	R	R	R
26	S.R	764271	M	Pus	infection	Anal fissure with fistula	9.9	11300	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
27	R.K	762543	S	Pus	smoking	Obstructive biliopathy with necrotising pancreatitis	11	12000	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
28	B.S	763291	S	Pus	infection	cellulitis	11.2	11000	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
29	D.R	764116	S	W/S	diabetes	Diabetic foot with CAD	10	13000	GNB	2	GNB	Pseudomonas aeruginusa	-	-	S	R	S	S	S
29	D.R	764116	S	W/S	diabetes	Diabetic foot with CAD	10	13000	GNB	2	GNB	Morganella morganii	-	-	R	R	R	S	S
30	S.S	765170	S	Tissue	immobilization	Debridement with muscle repair	12	11100	GNB	1	GNB	Acinetobacter lwoffii	R	R	S	R	S	R	S
31	B.G	133913	S	W/S	diabetes	DM2 with diabetic foot	9	10200	GPC,GNCB	1	GNB	Acinetobacter baumanii	R	R	S	S	S	R	S
32	R.S	524225	S	Tissue	diabetes	Diabetic foot	12	9800	GNB	2	GNB	Proteus mirabilis	R	R	S	S	S	R	S
32	R.S	524225	S	Tissue	diabetes	Diabetic foot	12	9800	GNB	2	GNB	Enterobacter cloacae	R	R	S	S	R	S	S
33	J.S	766934	S	Tissue	diabetes	Diabetic foot	10	10800	GNB	1	GNB	Escherichia coli	R	S	S	S	R	S	R
34	K.S	767033	S	Pus	concurrent infection at another site	Perforation peritonitis	10.2	13000	GNB	1	GNB	Escherichia coli	R	S	R	R	R	R	R
35	B.S	765585	S	W/S	diabetes	CLD with AKI with diabetic leg	8.5	8000	GPC, GNCB	1	GNB	Pseudomonas aeruginusa	R	R	S	S	R	R	S
36	D.S	766990	S	Tissue	diabetes	Diabetic foot	10.6	17300	GNB	1	GNB	Pseudomonas aeruginusa	R	-	S	S	S	R	S
37	R.S	122545	M	W/S	razor use for removal	Folliculitis	8.4	32600	GPC, GNB	1	GNB	Acinetobacter baumanii	R	R	R	R	R	R	R
38	S.S	753636	S	W/S	infection	Snake venom with cellulitis with AKI	8.6	5500	GPC, GNB, GNCB	1	GNB	Pseudomonas aeruginusa	-	-	-	R	R	-	R
39	V.S	750895	S	W/S	immobilization	RSA	10	12500	GPC, GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
40	K.A	760351	S	W/S	prolonged pre-op length of stay	Enterocutaneous fistula	9	12500	GNB, GNCB, BYLC	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
41	N.S	763543	S	Tissue	infection	Fournier's Gangrene	12.4	12600	GPC, GNB, GNCB	1	GNB	Enterobacter aerogenes	R	R	R	R	R	R	R
42	R.P	472487	S	Pus	immobilization	Rt gluteal abscess	11	13900	GPC, GNB	1	GNB	Escherichia coli	R	S	S	S	R	R	R
43	P.S	767171	S	Pus	infection	intestinal obstruction	15.5	9700	GNB	1	GNB	Escherichia coli	R	R	S	R	R	R	R
44	J.K	770494	S	W/S	immunosuppression	Cervial lymphadenopathy	12.2	9100	GPC, GNB	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
45	S.K	764593	S	Tissue	infection	Cellulitis leg	11.5	8300	GNB, GNCB	1	GNB	Enterobacter cloacae	R	R	R	R	R	R	R
46	S.S	767107	S	Pus	diabetes	CKD with DM2 with gluteal abscess	14.5	9400	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
47	B.S	670940	S	Tissue	diabetes	Diabetic foot	17.9	9300	GNB, GNCB, GPC	1	GNB	Pseudomonas aeruginusa	R	R	S	S	S	R	R
48	K.S	749095	S	W/S	diabetes	DM2 With HTN With pressure sore	8.3	7500	GNB	1	GNB	Pseudomonas aeruginusa	R	R	R	R	R	R	R
49	A.S	771674	S	W/S	diabetes	DM2 with Anaemia with diabeticfoot	9	10000	GNB	1	GNB	Escherichia coli	R	R	S	S	R	R	R
50	G.S	761054	S	W/S	diabetes	diabetic foot	9.7	13000	GNB, GNCB	1	GNB	Pseudomonas aeruginusa	-	-	R	S	R	R	S
51	D.M	771938	S	Tissue	infection	Pancreatitis with necrosis	5.9	10400	GPC, GNCB	1	GNB	Serratia marcescens	-	-	-	-	S	-	-
52	P.K	772800	S	Tissue	obesity	Hemiarthroplasty	9.2	7300	no m/o	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
53	A.K	775365	S	W/S	diabetes	Diabetic foot Rt	13.2	10000	GPC, GNB	1	GNB	Escherichia coli	R	R	S	S	S	R	S
54	A.S	774447	S	Pus	infection	Appendicitis	13.7	7300	GPC,GNB, GNCB	1	GNB	Escherichia coli	R	S	S	S	R	R	R
55	K.S	767592	S	Tissue	immobilization	both bone leg fracture	10.6	9300	GNB	1	GNB	Enterobacter cloacae	R	R	R	R	R	R	R
56	K.K	755897	S	Pus	infection	Pancreatitis	9.7	8200	GNB	1	GNB	Citrobacter freundii	R	R	S	S	R	S	S
57	S.S	535617	S	Tissue	Advanced age	CBD injury Post op cholecystectomy	10.3	19100	GNCB	1	GNB	Escherichia coli	R	R	S	S	R	R	R
58	U.S	474651	S	Tissue	Advanced age	cholecystitis	11.5	8600	GNB	1	GNB	Pseudomonas aeruginusa	-	R	S	S	S	R	S
59	J.A	775079	S	Pus	diabetes	Diabetic cellulitis	9.7	7100	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
60	S.S	771715	S	Tissue	infection	Pancreatitis	10.9	23100	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
61	N.R	776571	S	Tissue	immobilization	Implant removal	8.3	6200	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
62	R.K	553963	S	Pus	immobilization	RSA with BTA with HI	9.6	16000	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
63	K.S	745203	S	W/S	immobilization	L3 vertebral fracture	13.6	15500	GNB	1	GNB	Escherichia coli	R	R	S	R	R	R	R
64	J.K	694884	S	Tissue	infection	IVH	10	11200	GPC	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
65	K.S	747251	S	W/S	diabetes	Diabetic foot	9.5	6400	GNB, GNCB	1	GNB	Acinetobacter baumanii	R	R	S	R	R	R	R
66	C.S	747738	S	Tissue	diabetes	Diabetic Foot with DM2 with Sepsis	11.2	14500	GPC, GNB	1	GPC	Staphylococcus aureus	R	R	R	R	R	R	R
67	S	749784	S	W/S	infection	Osteomyelitic infected great toe Rt	6.1	9700	GNB, GNCB	1	GNB	Pseudomonas aeruginusa	R	R	R	S	R	R	R
68	M.P	725839	S	W/S	diabetes	RSA with trauma	8.4	7800	GNB	1	GNB	Pseudomonas aeruginusa	-	R	R	R	R	R	R

s.no:	NAME	MRD NO	CPM	IMP	MEM	ERT	DOR	AK	GEN	CIP	LEVO	MIN	TG	COT	PEN	OXA	CX	ERY	CLI	LZ	DPT	VAN	TEC	TET	RIF	probable ESBL	confirmed ESBL	PROBABLE AmpC	CONFIRMED AmpC	MBL	MECHANISMS	MRSA	VRE	MDR/XDR/PDR
1	N.G	837884	R	S	R	R	S	R	R	R	R	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	MDR
2	P.S	711625	-	-	-	-	-	-	-	R	R	-	-	R	R	R	R	R	S	R	S	S	R	R	S	-	-	-	-	-	-	YES	-	MDR
3	S.S	808601	R	S	S	R	S	S	S	S	R	S	S	S	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
4	H.C	445467	-	-	-	-	-	-	S	R	-	-	-	S	R	R	R	S	R	S	S	S	S	R	S	-	-	-	-	-	-	YES	-	MDR
5	B.S	741197	S	S	S	R	S	S	S	S	S	R	R	S	-	-	S	-	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	MDR
5	B.S	741197	R	S	S	S	R	S	R	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MDR
6	J.K	761109	-	-	-	-	-	R	-	R	R	-	-	R	R	R	R	R	R	R	R	R	S	S	R	-	-	-	-	-	-	YES	-	MDR
7	M.L	723349	R	R	R	R	R	S	S	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	POS	**MBL**	-	-	MDR
8	R.K	281366	S	S	S	R	S	S	S	R	R	R	R	S	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
9	K.K	653239	-	-	-	-	-	R	S	R	-	-	-	S	S	S	S	S	S	S	-	S	S	S	S	-	-	-	-	-	-	NO	-	-
10	B.S	37727	S	S	S	R	S	S	S	R	R	R	-	S	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
10	B.S	37727	R	R	R	R	R	R	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	POS	**ESBL,AmpC.MBL**	-	-	XDR
11	G.S	761054	R	R	R	R	R	S	S	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	POS	**MBL**	-	-	MDR
12	S.K	758133	R	R	R	R	R	R	R	R	R	R	R	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
13	L.K	522293	S	S	R	S	R	S	S	S	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	-	-	-
14	T.R	761258	R	S	R	S	R	S	S	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
15	H.K	739205	S	S	S	R	S	S	S	S	S	R	R	S	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
16	H.S	762451	R	S	S	R	S	S	S	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	**-**	-	-	MDR
17	N.S	763543	R	R	R	R	R	R	R	R	R	S	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
18	V.K	762754	S	S	S	S	R	S	S	S	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
19	S.K	764593	S	S	R	S	R	S	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
20	M	764305	S	S	S	R	S	S	S	R	R	S	R	R	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
21	L.K	700308	S	S	S	R	S	S	S	R	S	R	R	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	MDR
22	K.S	763241	S	S	S	S	R	S	R	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	**-**	-	-	MDR
23	D.S	741628	R	R	R	-	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR
24	S.V	751218	S	S	S	S	R	S	S	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	-	-	MDR
25	J.K	764192	R	R	R	R	R	R	R	S	S	S	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	MDR
26	S.R	764271	-	-	-	-	-	R	S	R	-	-	-	S	-	S	R	R	R	S	-	S	S	S	S	-	-	-	-	-	-	YES	-	MDR
27	R.K	762543	R	R	R	R	R	S	S	R	R	R	R	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	POS	**ESBL,AmpC.MBL**	-	-	XDR
28	B.S	763291	-	-	-	-	-	-	-	R	R	-	-	R	R	R	R	R	S	S	-	S	S	S	S	-	-	-	-	-	-	YES	-	MDR
29	D.R	764116	S	S	S	S	R	S	S	S	S	S	-	S	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	POS	MBL	-	-	-
29	D.R	764116	S	R	S	S	-	S	S	R	R	R	-	S	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	S.S	765170	S	S	R	R	S	S	S	S	S	S	S	S	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	-
31	B.G	133913	S	S	S	S	R	R	R	S	R	-	S	-	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MDR
32	R.S	524225	S	S	S	-	S	S	R	R	R	R	R	R	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MDR
32	R.S	524225	S	S	S	S	S	S	R	R	R	R	R	R	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	J.S	766934	S	S	S	R	S	R	R	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
34	K.S	767033	R	S	R	S	R	S	S	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
35	B.S	765585	S	S	S	R	S	S	S	R	R	R	-	R	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
36	D.S	766990	S	S	S	R	S	S	S	S	S	-	-	S	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	-
37	R.S	122545	R	R	R	R	R	R	R	R	R	R	S	S	S	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	MDR
38	S.S	753636	R	R	R	-	R	S	S	S	R	-	R	S	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	NEG	**ESBL**	-	-	MDR
39	V.S	750895	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR
40	K.A	760351	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	XDR
41	N.S	763543	R	R	R	R	R	R	R	R	R	S	R	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	XDR
42	R.P	472487	R	S	S	S	R	S	R	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
43	P.S	767171	R	S	S	R	S	S	S	R	R	S	R	S	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	**-**	-	-	MDR
44	J.K	770494	-	-	-	-	-	-	S	S	R	-	-	R	R	S	S	R	S	S	-	S	S	S	S	-	-	-	-	-	-	YES	-	-
45	S.K	764593	R	R	R	R	R	S	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR
46	S.S	767107	-	-	-	-	-	R	S	R	R	-	-	R	R	S	S	S	S	S	-	S	S	S	S	-	-	-	-	-	-	NO	-	MDR
47	B.S	670940	R	R	S	R	R	S	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
48	K.S	749095	R	R	R	R	R	R	R	R	R	R	R	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	POS	**ESBL,AmpC.MBL**	-	-	XDR
49	A.S	771674	R	S	S	S	R	S	S	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	MDR
50	G.S	761054	S	R	R	-	R	S	S	S	S	R	-	S	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	NEG	-	-	-	MDR
51	D.M	771938	-	S	-	-	-	S	S	-	-	-	-	R	-	-	R	R	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
52	P.K	772800	-	-	-	-	-	-	S	R	R	-	-	R	S	R	S	S	S	S	-	S	S	R	S	-	-	-	-	-	-	YES	-	MDR
53	A.K	775365	S	S	S	R	S	S	R	R	R	S	S	S	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MDR
54	A.S	774447	S	S	S	S	R	S	S	S	R	R	R	R	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
55	K.S	767592	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	POS	**AmpC,MBL**	-	-	XDR
56	K.K	755897	S	R	R	R	S	S	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	MDR
57	S.S	535617	R	S	S	R	S	S	R	R	R	S	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
58	U.S	474651	S	S	S	R	S	S	S	R	R	R	R	S	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MDR
59	J.A	775079	-	-	-	-	-	-	S	S	R	-	-	R	R	S	S	R	-	S	-	S	S	S	S	-	-	-	-	-	-	NO	-	-
60	S.S	771715	R	R	R	R	R	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	POS	**AmpC,MBL**	-	-	MDR
61	N.R	776571	-	-	-	-	-	-	S	S	-	-	-	S	S	S	S	S	S	S	-	S	S	S	S	-	-	-	-	-	-	NO	-	-
62	R.K	553963	R	R	R	R	R	S	S	R	R	R	R	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
63	K.S	745203	R	S	S	R	S	S	S	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	-	**ESBL,AmpC**	-	-	MDR
64	J.K	694884	R	R	R	R	R	R	R	R	R	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
65	K.S	747251	R	R	R	R	R	R	R	R	R	S	S	R	R	R	R	R	R	R	-	R	R	R	R	Y	NEG	Y	NEG	POS	MBL	-	-	XDR
66	C.S	747738	R	R	R	R	R	R	R	R	-	-	R	R	R	R	R	R	S	S	-	S	S	S	S	-	-	-	-	-	-	YES	-	MDR
67	S	749784	S	R	R	R	R	R	R	R	R	-	S	-	-	R	-	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
68	M.P	725839	R	R	R	-	R	R	R	R	R	R	R	R	R	R	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	NEG	**AmpC**	-	-	XDR

s.no:	NAME	MRD NO	AGE	SEX	DATE OF RECEIVING SAMPLE	loc	OUTCOME	LAB NO	SAMPLE	NUMBER OF DAYS	DATE OF ADMISSION	DATE OF DISCHARGE	SITE OF WOUND	CLASSIFICATION	TYPE	SURGERY DONE INSIDE
69	G.S	736757	26	M	6/11/2019	SG	DISCHARGED	5609	W/S	24	5/27/2019	6/19/2019	Foot	dirty	Traumatic wound	Debridement
70	K.S	738150	62	M	6/11/2019	SG	DISCHARGED	5602	W/S	35	6/4/2019	7/8/2019	Foot	dirty	Traumatic wound	Debridement, Amputation of Rt Finger
71	S.K	728775	31	M	6/10/2019	SG	DISCHARGED	5598	Tissue	39	5/15/2019	6/22/2019	Pelvis	dirty	Traumatic wound	Debridement
72	R.S	730029	30	M	6/18/2019	SG	DISCHARGED	5813	Pus	41	5/16/2019	6/25/2019	Pelvis	contaminated	Traumatic wound	Exploratory Laprotomy
73	R.K	748096	59	M	6/15/2019	SG	DISCHARGED	5746	Pus	37	6/14/2019	6/20/2019	Back	dirty	Abscess	NA
74	S.S	747921	60	M	6/14/2019	SG	DISCHARGED	5718	Tissue	45	6/14/2019	6/27/2019	Scrotum	dirty	Post op	Debridement
75	S.A	741996	35	M	6/14/2019	SG	DISCHARGED	5715	W/S	18	6/4/2019	6/21/2019	Perianal region	contaminated	Post op	Fistulectomy
76	G.S.K	744462	71	M	6/14/2019	SG	DISCHARGED	5716	Pus	15	6/8/2019	6/22/2019	Foot	dirty	Leg ulcer	Toe amputation with I & D
77	R.S	101949	38	M	6/9/2019	SG	DISCHARGED	5556	Pus	10	6/8/2019	6/17/2019	Abdomen	clean contaminated	Post op	Stoma closure
78	B.K	670940	48	F	6/11/2019	SG	DISCHARGED	5602	W/S	17	5/29/2019	6/14/2019	Foot	dirty	Diabetic ulcer	Debridement with amputation
79	B.K.S	727946	38	M	6/16/2019	MED	DISCHARGED	5771	W/S	12	6/6/2019	6/17/2019	Abdomen	contaminated	Post op	Lap cholecystectomy
80	P.G	749326	50	F	6/17/2019	SG	DISCHARGED	5798	W/S	5	6/17/2019	6/21/2019	Abdomen	contaminated	Post op	Lap cholecystectomy
80	P.G	749326	50	F	6/17/2019	SG	DISCHARGED	5798	W/S	5	6/17/2019	6/21/2019	Abdomen	contaminated	Post op	Lap cholecystectomy
81	G.W	748638	18	F	6/17/2019	SG	DISCHARGED	5807	Pus	4	6/16/2019	6/19/2019	Pus	contaminated	Post op	Tympanoplasty with mastoidectomy
82	B.K	702796	80	M	6/15/2019	SG	DISCHARGED	5729	W/S	12	6/7/2019	6/18/2019	W/S	contaminated	Post op	Exploratory laprotomy
83	R.K	677677	32	F	6/11/2019	SG	DISCHARGED	5587	Tissue	5	6/9/2019	6/13/2019	Gall Bladder	clean contaminated	Post op	Lap appendicectomy
84	R	725606	28	F	6/11/2019	SG	DISCHARGED	5588	Tissue	11	6/7/2019	6/17/2019	Leg	contaminated	Traumatic wound	External fixation
85	N.V	587944	35	F	6/10/2019	SG	DISCHARGED	5585	Pus	43	6/10/2019	7/22/2019	Breast	clean	Post op	MRM
86	C.S	676383	55	M	6/11/2019	SG	DISCHARGED	5612	W/S	40	5/9/2019	6/17/2019	Pus	dirty	Post op	Pancreatic necrosectomy
87	H.S	749071	40	M	6/24/2019	SG	DISCHARGED	5996	Tissue	20	6/15/2019	7/4/2019	Leg	contaminated	Traumatic wound	External fixation
88	S	753617	55	F	6/24/2019	SG	DISCHARGED	6002	Pus	16	6/23/2019	7/8/2019	Perineum	dirty	Abscess	Debridement
89	K.R.L	749234	53	M	6/25/2019	SG	DISCHARGED	6024	Pus	16	6/16/2019	7/1/2019	Abdomen	dirty	Abscess	NA
90	S.K	743509	62	F	6/25/2019	MED	DISCHARGED	6030	Pus	26	6/6/2019	7/1/2019	Pus	clean contaminated	Post op	D J Stenting
91	S.K	753549	26	F	6/24/2019	SG	DISCHARGED	5998	Tissue	17	6/23/2019	7/9/2019	Leg	dirty	Leg ulcer	I & D
92	S.C	753634	38	M	6/24/2019	SG	DISCHARGED	5992	W/S	10	6/23/2019	7/2/2019	Abdomen	clean	Post op	Hernioplasty
93	A.S	741453	23	M	6/25/2019	SG	DISCHARGED	6021	W/S	24	6/3/2019	6/27/2019	Arm	contaminated	Traumatic wound	Dual plating
94	G.S	754060	44	M	6/24/2019	SG	DISCHARGED	6001	Pus	5	6/24/2019	6/28/2019	Abdomen	dirty	Abscess	I & D
95	M.P	725839	39	M	6/26/2019	SG	DISCHARGED	5989	W/S	50	5/10/2019	6/29/2019	Abdomen	clean	Post op	Hernioplasty
96	M.C	754926	34	M	6/25/2019	SG	DISCHARGED	6022	Pus	1	6/25/2019	6/25/2019	Arm	dirty	Abscess	I & D
97	M.K	761775	70	F	7/7/2019	MED	DISCHARGED	6385	W/S	13	7/5/2019	7/17/2019	Foot	contaminated	Post op	Exploratory laprotomy
97	M.K	761775	70	F	7/7/2019	MED	DISCHARGED	6385	W/S	13	7/5/2019	7/17/2019	Foot	contaminated	Post op	Exploratory laprotomy
98	P.G	746617	68	M	6/27/2019	MED	DISCHARGED	6074	W/S	19	6/18/2019	7/6/2019	Foot	dirty	Diabetic ulcer	Debridement
98	P.G	746617	68	M	6/27/2019	MED	DISCHARGED	6074	W/S	19	6/18/2019	7/6/2019	Foot	dirty	Diabetic ulcer	Debridement
99	S	667365	19	M	3/1/2019	SG	DISCHARGED	2457	W/S	27	3/1/2019	3/27/2019	Hand	contaminated	Burns	Grafting
100	K.S	640417	65	M	3/4/2019	SG	DISCHARGED	2570	W/S	9	3/4/2019	3/12/2019	Foot	dirty	Diabetic ulcer	Debridement
101	K.S	651701	28	F	3/4/2019	SICU	DISCHARGED	2568	Pus	5	3/4/2019	3/8/2019	Pancreas	dirty	Post op	Pancreatic necrosectomy
102	S.K	674801	54	M	3/4/2019	SG	DISCHARGED	2561	Pus	13	2/27/2019	3/12/2019	PCN Drain	clean contaminated	Diabetic ulcer	Drain placement
103	G.S	673308	68	M	3/5/2019	SG	DISCHARGED	2586	W/S	22	2/22/2019	3/16/2019	Abdomen	clean contaminated	Post op	Liver Resection
104	N.K.G	683573	44	M	3/7/2019	SG	DISCHARGED	2678	Pus	6	3/7/2019	3/12/2019	Perineum	contaminated	Post op	Fistulectomy
105	J.K	635115	48	F	3/7/2019	SG	DISCHARGED	2672	Pus	6	3/7/2013	3/12/2019	Retroperitonium	clean contaminated	Post op	Cystectomy with mass excision
106	H.S	683806	53	M	3/7/2019	MED	DISCHARGED	2652	W/S	8	3/7/2019	3/14/2019	Foot	dirty	Diabetic ulcer	Debridement
107	H.S	683806	53	M	3/7/2019	MED	DISCHARGED	2671	W/S	8	3/7/2019	3/14/2019	Foot	dirty	Diabetic ulcer	Debridement
108	K.S	157018	54	M	3/8/2019	MED	DISCHARGED	2719	Tissue	2	3/7/2019	3/9/2019	Foot	dirty	Diabetic ulcer	Debridement
109	J.K	684327	65	M	3/8/2019	SG	DISCHARGED	2720	Tissue	8	3/7/2019	3/14/2019	Scrotum	dirty	Abscess	Debridement
110	N.B	662141	45	F	3/8/2019	MED	DISCHARGED	2709	W/S	6	3/8/2019	3/13/2019	Foot	dirty	Diabetic ulcer	Debridement
111	S.S	683473	23	M	3/8/2019	SG	DISCHARGED	2683	Pus	13	3/6/2019	3/18/2019	Liver	clean contaminated	Abscess	Aspiration
112	I.R	606558	61	F	3/8/2019	MED	DISCHARGED	2712	Pus	8	3/8/2019	3/15/2019	Breast	clean	Post op	MRM
113	S.D	684672	32	F	3/8/2019	SG	DISCHARGED	2711	Pus	4	3/8/2019	3/11/2019	Vagina	contaminated	Post op	Exploratory laprotomy
114	R.K	643087	48	M	3/9/2019	SG	DISCHARGED	2731	Pus	6	3/8/2019	3/14/2019	Neck	dirty	Abscess	I & D
115	N.S	94093	66	M	3/9/2019	SG	DISCHARGED	2750	W/S	6	3/8/2019	3/14/2019	Foot	dirty	Diabetic ulcer	Debridement
115	N.S	94093	66	M	3/9/2019	SG	DISCHARGED	2750	W/S	6	3/8/2019	3/14/2019	Foot	dirty	Diabetic ulcer	Debridement
116	A.M.S	684817	68	M	3/9/2019	SG	DISCHARGED	2752	Pus	5	3/9/2019	3/13/2019	Pancreas	contaminated	Post op	Pancreatic necrosectomy
117	D	685235	65	F	3/9/2019	SG	DISCHARGED	2749	Pus	6	3/9/2019	3/14/2019	Abdomen	dirty	Abscess	I & D
118	M	676082	53	M	3/10/2019	SG	DISCHARGED	2769	Pus	6	2/22/2019	3/27/2019	Abdomen	dirty	Traumatic wound	Exploratory laprotomy
119	R.K	643087	48	M	3/10/2019	MED	DISCHARGED	2760	Pus	7	3/8/2019	3/14/2019	Neck	dirty	Leg ulcer	Debridement
120	I.D	676479	70	M	3/11/2019	SG	DISCHARGED	2790	W/S	29	2/22/2019	3/22/2019	Leg	contaminated	Post op	Flapping
120	I.D	676479	70	M	3/11/2019	SG	DISCHARGED	2790	W/S	29	2/22/2019	3/22/2019	Leg	contaminated	Post op	Flapping
121	G.S	675719	58	M	3/11/2019	SG	DISCHARGED	2807	W/S	39	2/21/2019	5/31/2019	Brain	clean	Post op	Decompressive craniotomy
122	N.K	685975	52	M	3/11/2019	SG	DISCHARGED	2808	Pus	14	3/10/2019	3/23/2019	Scrotum	dirty	Abscess	Debridement
123	K.S	145141	37	M	3/11/2019	SG	DISCHARGED	2804	W/S	5	3/11/2019	3/15/2019	Foot	dirty	Diabetic ulcer	Debridement
124	B.K	687143	45	F	3/12/2019	SG	DISCHARGED	2848	Pus	3	3/11/2019	3/13/2019	Foot	clean contaminated	Traumatic wound	ORIF
125	N.R	685875	25	F	3/12/2019	SG	DISCHARGED	2824	W/S	8	3/12/2019	3/19/2019	Retroperitonium	dirty	Abscess	I & D
126	K.S	345969	66	M	3/12/2019	SG	DISCHARGED	2833	Tissue	12	3/3/2019	3/14/2019	Foot	dirty	Diabetic ulcer	Amputation
127	N.K	687454	60	F	3/12/2019	SG	DISCHARGED	2856	W/S	15	3/12/2019	3/26/2019	Abdomen	contaminated	Post op	Laprotomy
128	K.S	687471	46	M	3/13/2019	SG	DISCHARGED	2880	Pus	11	3/12/2019	3/22/2019	Perineum	dirty	Abscess	I & D
129	H.S	667378	54	M	3/13/2019	SG	DISCHARGED	2893	Pus	22	3/8/2019	3/29/2019	Pus	contaminated	Post op	Pancreatic Necrosectomy
130	S.K	687539	35	M	3/13/2019	SG	DISCHARGED	2889	Pus	22	3/8/2019	3/29/2019	Abdomen	dirty	Post op	REEA
131	H.G	687464	24	M	3/14/2019	SG	DISCHARGED	2891	Pus	8	3/12/2019	3/19/2019	Pus	contaminated	Post op	Fistulectomy
132	S.K	687232	33	M	3/14/2019	SG	DISCHARGED	2892	Pus	5	3/12/2019	3/16/2019	Pus	clean contaminated	Post op	Appendicectomy
133	U.D	695758	36	M	3/26/2019	SG	DISCHARGED	3284	Pus	5	3/18/2019	3/22/2019	Pus	dirty	Leg ulcer	I & D
134	J.S	691314	62	M	3/26/2019	SG	DISCHARGED	3270	Tissue	18	3/18/2019	4/4/2019	Foot	dirty	Diabetic ulcer	NA
135	A.S	694830	82	M	3/25/2019	SG	DISCHARGED	3249	Pus	16	3/24/2019	4/8/2019	Back	contaminated	Post op	NA

s.no:	NAME	MRD NO	MANAGEMENT	SAMPLE	RISK FACTOR	DIAGNOSIS	HEMOGLOBIN	TLC	GRAM STAIN	NO OF ISOLATES	GROWTH	ORGANISM	AMP	AMC	CSL	TZP	TIC	CI	CAZ
69	G.S	736757	S	W/S	immobilization	Nerve compression and foot drop	9.8	9900	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
70	K.S	738150	S	W/S	infection	Gangrene of Rt index finger	9.8	10600	GNB	1	GNB	Pseudomonas aeruginusa	-	R	R	R	R	R	R
71	S.K	728775	S	Tissue	immobilization	Pelvic fixator with debridement	8.6	7800	GNB	1	GNB	Acinetobacter baumanii	R	R	R	S	R	R	R
72	R.S	730029	S	Pus	obesity	RSA with Pelvic trauma	7.3	9000	GNB, GNCB	1	GNB	Acinetobacter baumanii	R	R	R	R	R	R	R
73	R.K	748096	M	Pus	chronic venous insufficiency	S/C Abscess on back	10.6	17400	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
74	S.S	747921	S	Tissue	concurrent infection at another site	Fournier's Gangrene	13.5	12800	GNB, GPC	1	GNB	Escherichia coli	R	S	S	S	R	S	R
75	S.A	741996	S	W/S	obesity	Fistula in ano	13.2	10000	GNB	1	GNB	Escherichia coli	R	R	R	R	S	R	R
76	G.S.K	744462	S	Pus	concurrent infection at another site	gangrene of toe Left Foot	10.3	19200	GPC, GNB	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
77	R.S	101949	M	Pus	diabetes	Post stoma closure	10.9	16900	GPC, GNB	1	GNB	Klebsiella pneumoniae	R	R	S	S	S	R	S
78	B.K	670940	S	W/S	diabetes	Diabetic foot	7.3	12900	GPC	1	GNB	Proteus mirabilis	R	R	R	R	R	R	R
79	B.K.S	727946	S	W/S	concurrent infection at another site	choledocholithiasis	10.7	11900	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
80	P.G	749326	S	W/S	concurrent infection at another site	echthyma gangrenosum with choledocholithiasis	11.5	9400	GNB	2	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
80	P.G	749326	S	W/S	concurrent infection at another site	echthyma gangrenosum with choledocholithiasis	11.5	9400	GNB	2	GNB	Escherichia coli	R	R	R	R	R	R	R
81	G.W	748638	S	Pus	infection	CSOM	11.7	8400	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
82	B.K	702796	S	W/S	Advanced age	Perforation	8.7	8500	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
83	R.K	677677	S	Tissue	infection	Appendicitis	10	5800	GNB	1	GNB	Escherichia coli	R	R	R	S	S	R	S
84	R	725606	S	Tissue	others	RSA	11.1	13900	no m/o	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
85	N.V	587944	S	Pus	immunosuppression	Ca Breast	12.1	10500	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
86	C.S	676383	S	W/S	concurrent infection at another site	Pancreatitic necrosectomy	9.2	16300	GNB	1	GNB	Acinetobacter baumanii	R	R	S	R	R	R	R
87	H.S	749071	S	Tissue	others	RSA, Fracture tibia	8.6	17900	GNCB	1	GNB	Acinetobacter baumanii	R	R	S	R	R	R	R
88	S	753617	S	Pus	infection	Perineal abscess	9.3	11200	GNB	1	GNB	Escherichia coli	R	R	S	R	R	R	R
89	K.R.L	749234	M	Pus	immunosuppression	Nephrolithiasis with HUN	11.7	12400	GNB	1	GNB	Escherichia coli	S	S	S	S	R	S	R
90	S.K	743509	S	Pus	immunosuppression	Nephrolithiasis	8.1	38600	GNB	1	GNB	Escherichia coli	R	S	S	S	R	R	R
91	S.K	753549	S	Tissue	immobilization	Below knee amputation	7.5	10800	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
92	S.C	753634	S	W/S	obesity	Umblical hernia	11.1	11200	GNB	1	GNB	Escherichia coli	R	S	S	R	R	R	R
93	A.S	741453	S	W/S	immobilization	RSA	12.6	12000	GNB	1	GNB	Acinetobacter baumanii	R	R	R	R	R	R	R
94	G.S	754060	S	Pus	obesity	Cellulitis abdomen	12.3	8200	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
95	M.P	725839	S	W/S	obesity	Umblical hernia	9	8200	GNB	1	GNB	Pseudomonas aeruginusa	-	-	R	R	R	-	R
96	M.C	754926	S	Pus	others	Abscess	13	10800	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
97	M.K	761775	S	W/S	Advanced age	RA,HTN, Colitis with ACS	11	11000	GNB	2	GNB	Escherichia coli	R	R	S	R	R	R	R
97	M.K	761775	S	W/S	Advanced age	RA,HTN, Colitis with ACS	11	11000	GNB	2	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
98	P.G	746617	S	W/S	diabetes	DM2 With HTN, Diabetic foot with CAD	9.4	12600	GNB	2	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
98	P.G	746617	S	W/S	diabetes	DM2 With HTN, Diabetic foot with CAD	9.4	12600	GNB	2	GNB	Pseudomonas aeruginusa	-	-	R	R	R	-	R
99	S	667365	S	W/S	concurrent infection at another site	Burns	8.9	8200	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
100	K.S	640417	S	W/S	diabetes	diabetic foot	10	6100	GNB	1	GNB	Pseudomonas aeruginusa	R	R	R	R	R	R	R
101	K.S	651701	S	Pus	infection	Pancreatitis	9.9	13100	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
102	S.K	674801	S	Pus	diabetes	DM2 with CKD with pyelonephrosis	14	14400	GNB	1	GNB	Acinetobacter baumanii	R	R	S	R	R	R	R
103	G.S	673308	S	W/S	immunosuppression	Liver resection with space occupying lesion	12	11400	GNB	1	GNB	Escherichia coli	R	S	S	S	R	R	R
104	N.K.G	683573	S	Pus	obesity	Anal fistula	12	12900	GNB	1	GNB	Escherichia coli	R	R	S	S	R	R	R
105	J.K	635115	S	Pus	immunosuppression	Ovarian cyst	7.1	16300	GNB	1	GNB	Escherichia coli	R	R	S	S	S	R	S
106	H.S	683806	S	W/S	diabetes	Diabetic foot with DM2	12	13000	GNB, GNCB	1	GNB	Klebsiella oxytoca	R	S	S	S	R	S	R
107	H.S	683806	S	W/S	diabetes	Diabetic foot with DM2	12	10300	GNB	1	GPC	Enterococcus faecalis	-	-	-	-	-	-	-
108	K.S	157018	S	Tissue	diabetes	Diabetic foot	10	7200	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
109	J.K	684327	S	Tissue	Advanced age	Forniere's Gangrene	11.8	14200	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
110	N.B	662141	S	W/S	diabetes	Diabetic foot with DM2 with diabetic neuropathy	10.5	10600	GNB	1	GNB	Serratia marcescens	R	R	R	R	S	R	R
111	S.S	683473	S	Pus	immunosuppression	Liver abscess	13.9	14300	GNB	1	GNB	Escherichia coli	R	R	S	R	R	R	R
112	I.R	606558	S	Pus	immunosuppression	Ca Breast	9.5	7500	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
113	S.D	684672	S	Pus	concurrent infection at another site	IUD	10	15800	GNB	1	GNB	Escherichia coli	R	S	S	S	R	R	R
114	R.K	643087	S	Pus	immunosuppression	CKD with Neck Abscess	6.7	10300	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
115	N.S	94093	S	W/S	diabetes	Diabetic foot	8.9	6500	GPC, GNCB	2	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
115	N.S	94093	S	W/S	diabetes	Diabetic foot	8.9	6500	GPC, GNCB	2	GNB	Escherichia coli	R	R	R	R	R	R	R
116	A.M.S	684817	S	Pus	obesity	Pancreatitis	10.4	14500	GPC, GNB	1	GNB	Escherichia coli	R	R	S	S	S	R	S
117	D	685235	S	Pus	others	Abdominal wall Abscess	12	11500	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
118	M	676082	S	Pus	others	RSA	10.8	9700	GNB	1	GNB	Pseudomonas aeruginusa	R	R	R	S	S	R	S
119	R.K	643087	S	Pus	immunosuppression	cellulitis	6.7	10700	GPC, GNB	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
120	I.D	676479	S	W/S	edema	Crush leg injury	8.5	6400	GNB	2	GNB	Escherichia coli	R	R	S	R	R	R	R
120	I.D	676479	S	W/S	edema	Crush leg injury	8.5	6400	GNB	2	GNB	Acinetobacter baumanii	R	R	S	R	R	R	R
121	G.S	675719	S	W/S	edema	Brain infarct	12	15500	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
122	N.K	685975	S	Pus	obesity	Scrotal swelling	13.3	14300	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
123	K.S	145141	S	W/S	diabetes	Diabetic foot	8.2	9300	GNB	1	GNB	Pseudomonas aeruginusa	R	R	R	S	R	R	S
124	B.K	687143	S	Pus	chronic venous insufficiency	Fracture ankle	11.8	12900	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
125	N.R	685875	S	W/S	malnutrition	Retroperitoneal abcess	8.4	7800	GNCB	1	GNCB	Acinetobacter baumanii	R	R	S	R	R	R	R
126	K.S	345969	S	Tissue	diabetes	Diabetic foot	8.5	13900	GNB	1	GNCB	Acinetobacter baumanii	R	R	S	R	R	R	R
127	N.K	687454	S	W/S	immunosuppression	Perforation post laprotomy	12	19900	GPC	1	GNB	Enterobacter cloacae	R	R	R	R	R	R	R
128	K.S	687471	S	Pus	obesity	Peritoneal abscess	14.6	13800	GPC	1	GNB	Escherichia coli	R	R	S	R	R	R	R
129	H.S	667378	S	Pus	immunosuppression	Nectrotising Pancreas	13	8700	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
130	S.K	687539	S	Pus	vascular disease	Diag Laprotomy with REEA	13.4	10500	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
131	H.G	687464	S	Pus	obesity	Perianal fistula	13.5	7400	GNB	1	GNB	Escherichia coli	R	S	S	S	R	R	R
132	S.K	687232	S	Pus	obesity	appendicectomy	15.3	11700	GNB	1	GNB	Escherichia coli	R	R	S	S	R	S	R
133	U.D	695758	S	Pus	vascular disease	Foot gangrene	9.3	11400	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
134	J.S	691314	M	Tissue	diabetes	DM2 with left leg cellulitis	10.1	28700	GNCB	1	GNCB	Acinetobacter baumanii	R	R	R	R	R	R	R
135	A.S	694830	M	Pus	immobilization	P/O/C/O Open cholecystectomy	8.11	11300	GNB	1	GNB	Escherichia coli	R	R	S	S	R	R	R

s.no:	NAME	MRD NO	CPM	IMP	MEM	ERT	DOR	AK	GEN	CIP	LEVO	MIN	TG	COT	PEN	OXA	CX	ERY	CLI	LZ	DPT	VAN	TEC	TET	RIF	probable ESBL	confirmed ESBL	PROBABLE AmpC	CONFIRMED AmpC	MBL	MECHANISMS	MRSA	VRE	MDR/XDR/PDR
69	G.S	736757	-	-	-	-	-	-	R	-	-	-	-	R	R	S	S	S	R	S	-	S	S	R	S	-	-	-	-	-	-	NO	-	MDR
70	K.S	738150	R	R	R	-	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	R	R	R	R	Y	NEG	Y	NEG	NEG	-	NO	-	XDR
71	S.K	728775	R	R	R	R	R	R	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
72	R.S	730029	R	R	R	R	R	R	R	R	R	S	-	S	-	R	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	POS	MBL	-	-	XDR
73	R.K	748096	-	-	-	-	-	-	S	R	R	-	-	S	R	R	R	S	S	S	-	S	S	R	S	-	-	-	-	-	-	YES	-	MDR
74	S.S	747921	S	S	S	S	R	S	R	S	R	R	S	S	R	S	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
75	S.A	741996	R	R	R	R	R	S	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	NEG	AmpC	-	-	XDR
76	G.S.K	744462	-	-	-	-	-	-	S	R	-	-	-	S	R	R	R	S	S	S	-	S	S	S	S	-	-	-	-	-	-	YES	-	MDR
77	R.S	101949	S	S	S	R	S	S	S	S	S	S	S	S	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MDR
78	B.K	670940	R	R	S	R	R	S	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR
79	B.K.S	727946	S	R	R	R	R	S	R	S	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
80	P.G	749326	-	-	-	-	-	-	R	R	-	-	-	S	R	R	R	R	R	S	S	S	S	S	S	-	-	-	-	-	-	YES	-	MDR
80	P.G	749326	R	S	S	R	R	S	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	POS	**ESBL,AmpC.MBL**	-	-	MDR
81	G.W	748638	-	-	-	-	-	-	S	R	R	-	-	S	R	S	S	R	S	S	-	S	S	S	S	-	-	-	-	-	-	YES	-	MDR
82	B.K	702796	R	S	S	R	R	S	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	-	**AmpC**	-	-	MDR
83	R.K	677677	S	S	S	R	S	S	R	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MDR
84	R	725606	-	-	-	-	-	R	S	-	-	-	-	S	R	S	S	R	R	S	-	S	S	S	S	-	-	-	-	-	-	NO	-	MDR
85	N.V	587944	-	-	-	-	-	-	S	R	-	-	-	S	R	S	S	S	S	S	-	S	S	S	S	-	-	-	-	-	-	NO	-	MDR
86	C.S	676383	R	R	R	R	R	R	R	R	R	S	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR
87	H.S	749071	R	R	R	R	R	R	R	R	S	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
88	S	753617	S	S	S	S	R	S	S	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	POS	**AmpC,MBL**	-	-	MDR
89	K.R.L	749234	S	S	S	S	R	S	R	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	-	-	-
90	S.K	743509	R	S	S	S	R	S	S	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
91	S.K	753549	R	R	R	R	R	R	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	POS	**AmpC,MBL**	-	-	XDR
92	S.C	753634	S	S	S	S	R	S	S	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
93	A.S	741453	R	R	R	R	R	S	R	R	R	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR
94	G.S	754060	R	R	R	R	R	R	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	POS	MBL	-	-	XDR
95	M.P	725839	R	R	R	-	R	R	R	R	R	R	-	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
96	M.C	754926	-	-	-	-	-	R	S	R	-	-	R	R	-	R	R	R	R	S	-	S	S	S	S	-	-	-	-	-	-	YES	-	MDR
97	M.K	761775	R	S	S	S	R	S	S	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	MDR
97	M.K	761775	-	-	-	-	-	-	S	R	-	-	R	S	R	R	R	R	R	R	R	R	R	R	R	-	-	-	-	-	-	YES	-	MDR
98	P.G	746617	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
98	P.G	746617	R	R	R	-	R	R	R	R	R	R	-	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	NEG	**AmpC**	-	-	XDR
99	S	667365	R	R	R	R	R	R	S	R	-	-	-	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	XDR
100	K.S	640417	R	R	-	-	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	NEG	**AmpC**	-	-	XDR
101	K.S	651701	R	R	R	R	R	S	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	XDR
102	S.K	674801	R	R	R	R	R	R	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
103	G.S	673308	S	S	S	S	R	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	XDR
104	N.K.G	683573	S	S	S	S	R	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	-	**ESBL,AmpC**	-	-	XDR
105	J.K	635115	S	S	S	R	S	S	S	R	R	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	-	AmpC	-	-	XDR
106	H.S	683806	S	S	S	S	R	S	S	R	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	-	-	MDR
107	H.S	683806	-	-	-	-	-	-	S	S	-	-	-	-	S	-	S	-	S	S	S	S	S	R	R	-	-	-	-	-	-	-	-	XDR
108	K.S	157018	R	R	R	R	R	R	S	R	R	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	-	**ESBL,AmpC**	-	-	XDR
109	J.K	684327	R	S	R	R	R	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	XDR
110	N.B	662141	R	R	S	R	R	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	XDR
111	S.S	683473	S	S	S	R	S	S	S	R	R	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	XDR
112	I.R	606558	-	-	-	-	-	-	-	-	-	-	-	-	R	S	R	S	S	S	S	S	S	R	S	-	-	-	-	-	-	NO	-	MDR
113	S.D	684672	R	S	S	S	R	S	S	R	R	R	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	**-**	-	-	MDR
114	R.K	643087	-	-	-	-	-	-	-	-	-	-	-	-	R	R	S	S	S	S	S	S	S	S	S	-	-	-	-	-	-	YES	NO	MDR
115	N.S	94093	-	-	-	-	-	S	R	R	R	R	R	S	R	R	R	R	S	S	S	S	S	-	R	-	-	-	-	-	-	YES	-	MDR
115	N.S	94093	R	S	S	R	S	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	-	**ESBL,AmpC**	-	-	XDR
116	A.M.S	684817	S	S	S	R	S	S	S	S	S	S	S	R	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
117	D	685235	-	-	-	-	-	-	-	-	-	-	-	R	R	S	S	R	S	S	S	S	S	-	S	-	-	-	-	-	-	NO	-	MDR
118	M	676082	R	S	S	R	R	R	R	R	R	-	R	-	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	-	-	XDR
119	R.K	643087	-	-	-	-	-	-	S	R	-	-	-	R	R	S	S	S	S	S	S	S	S	-	S	-	-	-	-	-	-	NO	-	MDR
120	I.D	676479	R	S	S	S	R	S	S	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
120	I.D	676479	R	R	R	R	R	-	R	R	R	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR
121	G.S	675719	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	XDR
122	N.K	685975	R	R	R	R	R	S	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
123	K.S	145141	S	S	S	R	S	R	S	R	S	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
124	B.K	687143	-	-	-	-	-	-	-	-	-	-	-	-	R	S	S	S	S	S	S	S	S	S	S	-	-	-	-	-	-	NO	-	-
125	N.R	685875	R	R	R	R	R	-	R	R	R	R	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	POS	**ESBL,MBL**	-	-	XDR
126	K.S	345969	R	R	R	R	R	R	R	R	R	R	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
127	N.K	687454	R	R	R	R	R	R	R	R	R	R	R	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	**-**	-	-	XDR
128	K.S	687471	S	S	S	S	R	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
129	H.S	667378	R	S	S	R	R	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
130	S.K	687539	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
131	H.G	687464	R	S	S	S	R	S	R	R	R	R	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
132	S.K	687232	S	S	S	R	R	R	S	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	XDR
133	U.D	695758	R	S	S	R	R	S	S	R	R	R	R	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	MDR
134	J.S	691314	R	R	R	R	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
135	A.S	694830	R	S	S	R	S	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR

s.no:	NAME	MRD NO	AGE	SEX	DATE OF RECEIVING SAMPLE	loc	OUTCOME	LAB NO	SAMPLE	NUMBER OF DAYS	DATE OF ADMISSION	DATE OF DISCHARGE	SITE OF WOUND	CLASSIFICATION	TYPE	SURGERY DONE INSIDE
136	R.S	691343	59	M	3/25/2019	SG	DISCHARGED	3244	Pus	43	3/18/2019	4/29/2019	Foot	clean	Post op	NA
137	R.S	693969	32	M	3/22/2019	SG	DISCHARGED	3165	Pus	14	3/22/2019	4/4/2019	Pancreas	dirty	Post op	Exploratory laprotomy with ileostomy
138	N.Y	688836	50	M	3/26/2019	SG	DISCHARGED	3277	Pus	17	3/14/2019	3/30/2019	Gall Bladder	contaminated	Post op	Cholecystitis
139	S.S	690573	50	M	3/25/2019	SG	DISCHARGED	3243	Pus	4	3/25/2019	3/28/2019	Foot	dirty	Diabetic ulcer	Debridement
140	A.K	686742	40	M	3/25/2019	SG	DISCHARGED	3231	Pus	18	3/12/2019	3/30/2019	Pus	dirty	Leg ulcer	NA
141	G.S	563571	53	M	3/26/2019	SG	DISCHARGED	3261	W/S	8	3/22/2019	3/29/2019	W/S	contaminated	Post op	cholecystectomy
142	H.S	695085	64	M	3/28/2019	MED	DISCHARGED	3335	W/S	15	3/25/2019	4/8/2019	Knee	clean contaminated	Abscess	Cirrhosis with ALD with Rt knee abscess
143	I.D	676479	70	M	3/28/2019	SG	DISCHARGED	3334	W/S	22	3/25/2019	4/15/2019	Thigh	clean contaminated	Leg ulcer	SSG
144	A.S	559296	60	M	3/27/2019	SG	DISCHARGED	3298	W/S	22	3/27/2019	4/17/2019	Leg	dirty	Diabetic ulcer	NA
145	S.S	675037	72	M	3/27/2019	SG	DISCHARGED	3313	Tissue	38	2/20/2019	3/30/2019	Back	contaminated	Post op	NA
146	H.S	688760	82	M	3/28/2019	SG	DISCHARGED	3326	Pus	12	3/25/2019	4/5/2019	contaminated	contaminated	Post op	Cholecystectomy
147	A.K	693934	22	F	3/26/2019	SG	DISCHARGED	3269	Pus	34	3/24/2019	3/27/2019	Abdomen	contaminated	Burns	NA
148	S.S	685615	64	M	3/22/2019	SG	DISCHARGED	3163	Pus	42	3/18/2019	3/28/2019	Prostrate	clean contaminated	Abscess	TURP
149	G.S	675719	68	M	3/22/2019	SICU	DISCHARGED	3149	Pus	99	2/21/2019	5/31/2019	Brain	contaminated	Post op	Flapping
150	J.S	680149	57	M	3/15/2019	SG	DISCHARGED	-	Pus	27	2/28/2019	3/26/2019	Abdomen	contaminated	Post op	Exploratory Laprotomy
151	B.K.J	693104	64	M	3/22/2019	SG	DISCHARGED	3173	Tissue	36	3/21/2019	3/28/2019	Foot	dirty	Diabetic ulcer	Debridement
152	C.S	689498	55	F	3/22/2019	MED	DISCHARGED	3134	Tissue	9	3/20/2019	3/28/2019	Foot	dirty	Diabetic ulcer	Debridement
153	A.S	689976	71	M	3/18/2019	SG	DISCHARGED	3022	W/S	11	3/16/2019	3/26/2019	Foot	dirty	Diabetic ulcer	Debridement
154	P	690421	22	F	3/18/2019	SG	DISCHARGED	3027	Tissue	23	3/17/2019	4/8/2019	Leg	contaminated	Traumatic wound	Debridement with K wire fixation.
155	G.S	690244	45	M	3/18/2019	SG	DISCHARGED	3023	Tissue	15	3/16/2019	3/30/2019	Appendix	clean contaminated	Post op	Appendicectomy
156	B.S	693174	57	M	3/21/2019	MED	DISCHARGED	3134	Tissue	7	3/21/2019	3/27/2019	Foot	dirty	Diabetic ulcer	Below knee amputation
157	K.L.G	554810	65	M	3/20/2019	MED	DISCHARGED	3078	Tissue	39	3/2/2019	4/9/2019	Foot	dirty	Diabetic ulcer	Below knee amputation
158	N.K	692140	27	F	3/20/2019	SG	DISCHARGED	3096	W/S	11	3/19/2019	3/29/2019	Abdomen	clean	Post op	Laproscopic Adhesiolysis
159	M.B	472434	45	F	3/21/2019	SG	DISCHARGED	3099	W/S	7	3/20/2019	3/26/2019	Brain	clean	Post op	Cranioplasty
160	R.S.K	531374	19	M	3/18/2019	MED	DISCHARGED	3004	Pus	4	3/17/2019	3/20/2019	Foot	dirty	Abscess	I & D
161	U.K	83481	23	M	3/14/2019	SG	DISCHARGED	2929	W/S	10	3/13/2019	3/22/2019	Appendix	clean contaminated	Post op	Lap appendectomy
161	U.K	83481	23	M	3/14/2019	SG	DISCHARGED	2929	W/S	10	3/13/2019	3/22/2019	Appendix	clean contaminated	Post op	Lap appendectomy
162	R.D	683834	59	F	3/15/2019	SG	DISCHARGED	2948	Pus	16	3/7/2019	3/22/2019	Abdomen	contaminated	Post op	Hemicolectomy
163	K.S	688191	36	M	3/14/2019	MED	DISCHARGED	2919	W/S	9	3/13/2019	3/21/2019	Foot	dirty	Diabetic ulcer	Debridement
164	J.K	682275	75	F	3/15/2019	SG	DISCHARGED	2952	W/S	25	3/4/2019	3/28/2019	Foot	dirty	Leg ulcer	Amputation below knee
165	T.K	688313	40	M	3/15/2019	SG	DISCHARGED	2958	Pus	7	3/14/2019	3/20/2019	Perineum	contaminated	Post op	Fistulectomy
166	K.K	6877	43	F	3/19/2019	SG	DISCHARGED	3066	W/S	5	3/19/2019	3/23/2019	Axilla	dirty	Abscess	Folliculitis
167	P.S	687325	70	M	3/14/2019	SG	DISCHARGED	2917	Tissue	17	3/12/2019	3/28/2019	Leg	dirty	Diabetic ulcer	NA
168	J.K	670987	27	F	3/18/2019	SG	DISCHARGED	3029	Tissue	11	3/15/2019	3/25/2019	Pancreas	dirty	Post op	Pancreatectomy
169	S.P.S	691152	45	M	3/18/2019	SG	DISCHARGED	3024	W/S	4	3/18/2019	3/21/2019	Leg	dirty	Abscess	I & D
170	K.S	505714	45	M	3/21/2019	MED	DISCHARGED	3104	W/S	4	3/20/2019	3/23/2019	Abdomen	contaminated	Post op	Cholecystitis
170	K.S	505714	45	M	3/21/2019	MED	DISCHARGED	3104	W/S	4	3/20/2019	3/23/2019	Abdomen	contaminated	Post op	Cholecystitis
171	J.S	684390	60	M	3/20/2019	MED	DISCHARGED	3081	Tissue	4	3/20/2019	3/23/2019	Foot	dirty	Diabetic ulcer	Debridement
172	S.P.S	691152	45	M	3/19/2019	SG	DISCHARGED	3067	Tissue	4	3/18/2019	3/21/2019	Foot	dirty	Diabetic ulcer	Debridement
173	D.T	712664	35	M	4/23/2019	SG	DISCHARGED	4157	W/S	16	4/20/2019	5/8/2019	Leg	dirty	Diabetic ulcer	Amputation
174	P.S	716674	70	M	4/26/2019	SG	DISCHARGED	4257	Pus	18	4/26/2019	5/13/2019	Scrotum	dirty	Abscess	Debridement
175	K.L	608448	70	M	4/26/2019	SG	DISCHARGED	4258	W/S	4	4/26/2019	4/29/2019	Leg	contaminated	Traumatic wound	Plating
176	P.K	710282	30	F	4/26/2019	SG	DISCHARGED	4259	Tissue	20	4/16/2019	5/5/2019	Thigh	dirty	Leg ulcer	Debridement
177	B.S	66021	64	M	4/27/2019	SG	DISCHARGED	4263	Pus	16	4/22/2019	5/7/2019	Abdomen	contaminated	Post op	Cholecystectomy
178	P.K	576549	40	M	4/27/2019	MED	DISCHARGED	4286	Pus	8	4/27/2019	5/4/2019	Lung	clean contaminated	Abscess	Aspiration
179	S.S.S	716853	52	M	4/28/2019	SG	DISCHARGED	4304	Pus	12	4/26/2019	5/7/2019	Abdomen	contaminated	Post op	Hemicolectomy
180	T.A	715603	43	F	4/28/2019	SG	DISCHARGED	4306	Pus	27	4/25/2019	5/21/2019	Appendix	clean contaminated	Post op	Appendicectomy
181	K.K.J	526357	57	M	4/28/2019	SG	DISCHARGED	4314	W/S	23	4/15/2019	5/7/2019	Foot	dirty	Diabetic ulcer	NA
182	R.S	704229	60	M	5/1/2019	SG	DISCHARGED	4416	W/S	32	4/7/2019	5/8/2019	Prostrate	dirty	Abscess	I & D
183	J.S	123610	56	M	4/29/2019	SG	DAMA	4332	W/S	12	4/27/2019	5/8/2019	-	dirty	Abscess	I & D
184	V.G	672807	67	M	5/1/2019	SG	DISCHARGED	4421	Pus	2	5/1/2019	5/2/2019	PCN	clean contaminated	Abscess	Drain placement
185	G.S	675719	58	M	5/1/2019	SICU	DISCHARGED	4422	W/S	11	2/21/2019	3/2/2019	-	clean	Post op	MCA INFARCT
186	P.S	714043	38	M	5/1/2019	SG	DISCHARGED	4423	W/S	10	4/23/2019	5/31/2019	Abdomen	contaminated	Post op	Laprotomy
187	S.K	702766	31	M	5/2/2019	SG	DISCHARGED	4434	Pus	5	5/1/2019	5/5/2019	Abdomen	contaminated	Post op	Hemicolectomy
188	S.S	718476	48	M	4/29/2019	SG	DISCHARGED	4344	Pus	14	4/29/2019	5/11/2019	Leg	dirty	Abscess	I & D
189	D.T	712664	35	M	4/20/2019	SG	DISCHARGED	4346	Tissue	19	4/20/2019	5/8/2019	Foot	dirty	Leg ulcer	Amputation
190	D.K	708500	37	M	4/30/2019	SG	DISCHARGED	4389	Pus	21	4/17/2019	5/7/2019	Hypochondrium	clean contaminated	Post op	Liver transplant
191	V.K	678542	45	M	4/30/2019	SG	DISCHARGED	4364	W/S	11	4/30/2019	5/10/2019	Abdomen	contaminated	Post op	Exploratory Laprotomy
192	B.K	720699	54	M	5/2/2019	SG	DISCHARGED	4452	W/S	8	5/2/2019	5/9/2019	Leg	contaminated	Traumatic wound	External fixation
193	D.S	717696	59	M	5/3/2019	SG	DISCHARGED	4478	Pus	24	4/28/2019	5/22/2019	Abdomen	clean contaminated	Post op	Appendicectomy
194	R.S	475297	52	M	5/3/2019	SG	DISCHARGED	4480	W/S	6	5/2/2019	5/7/2019	Foot	dirty	Diabetic ulcer	Debridement
195	N.S	625984	57	F	5/3/2019	MED	DISCHARGED	4481	Tissue	6	5/2/2019	5/7/2019	Foot	dirty	Diabetic ulcer	Debridement
196	R.S	720046	47	M	5/3/2019	SG	DISCHARGED	4482	Pus	20	5/1/2019	5/20/2019	Prostrate	dirty	Abscess	I & D
197	M.S	296951	50	M	5/3/2019	MED	DISCHARGED	4486	Pus	15	5/2/2019	5/16/2019	Foot	dirty	Diabetic ulcer	NA
198	L	721448	63	M	5/3/2019	SG	DISCHARGED	4497	W/S	21	5/3/2019	5/23/2019	Perineum	dirty	Abscess	Debridement
199	R.S	721475	25	M	5/4/2019	SG	DISCHARGED	4498	Pus	5	5/4/2019	5/9/2019	-	clean contaminated	Abscess	NA
200	R.K	722042	44	M	5/4/2019	SG	DISCHARGED	4518	Pus	17	5/4/2019	5/20/2019	Testis	dirty	Abscess	I & D
201	M.A	722134	65	M	5/6/2019	MED	DISCHARGED	4561	W/S	25	5/4/2019	5/28/2019	Foot	dirty	Diabetic ulcer	Debridement
201	M.A	722134	65	M	5/6/2019	MED	DISCHARGED	4561	W/S	25	5/4/2019	5/28/2019	Foot	dirty	Diabetic ulcer	Debridement
202	K.R	722283	60	M	5/6/2019	SG	DISCHARGED	4652	W/S	19	5/5/2019	5/24/2019	Abdomen	dirty	Leg ulcer	I & D
203	D.V	719767	44	F	5/6/2019	SG	DISCHARGED	4551	Pus	9	5/1/2019	5/10/2019	-	clean contaminated	Post op	USG guided cathetar drainage
203	D.V	719767	44	F	5/6/2019	SG	DISCHARGED	4551	Pus	9	5/1/2019	5/10/2019	-	clean contaminated	Post op	USG guided cathetar drainage

s.no:	NAME	MRD NO	MANAGEMENT	SAMPLE	RISK FACTOR	DIAGNOSIS	HEMOGLOBIN	TLC	GRAM STAIN	NO OF ISOLATES	GROWTH	ORGANISM	AMP	AMC	CSL	TZP	TIC	CI	CAZ
136	R.S	691343	M	Pus	vascular disease	Seizure disorder post decompression	10.1	12600	GNCB	1	GNCB	Acinetobacter baumanii	R	R	S	R	R	R	R
137	R.S	693969	S	Pus	obesity	Intestinal obstruction	11.6	22300	GNB	1	GNB	Escherichia coli	R	S	S	S	R	R	S
138	N.Y	688836	S	Pus	vascular disease	Cholecystitis	12.7	15200	GNB	1	GNB	Acinetobacter baumanii	R	R	R	R	R	R	R
139	S.S	690573	S	Pus	diabetes	Diabetic foot	12.2	7200	GNB	1	GNB	Klebsiella pneumoniae	R	R	S	R	R	R	R
140	A.K	686742	M	Pus	others	Cellulitis both legs	8	8600	GNCB	1	GNCB	Acinetobacter baumanii	R	R	R	R	R	R	R
141	G.S	563571	S	W/S	others	Cholecystitis	11.6	8700	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
142	H.S	695085	S	W/S	immunosuppression	Debridement	10.4	7100	GNCB	1	GNCB	Acinetobacter baumanii	R	R	R	R	R	R	R
143	I.D	676479	S	W/S	vascular disease	Nonhealing ulcer on thigh	8.5	9500	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
144	A.S	559296	M	W/S	diabetes	DM2 with P/C/O Below knee amputation	11.2	12200	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
145	S.S	675037	M	Tissue	immobilization	Compressive myopathy	8.1	14800	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
146	H.S	688760	S	Pus	others	cholelithiasis with fever	10.7	13300	GNB	1	GNB	Escherichia coli	R	S	S	S	R	R	R
147	A.K	693934	M	Pus	vascular disease	60% Flame burns	9	8300	GNCB	1	GNCB	Acinetobacter baumanii	R	R	S	R	R	R	R
148	S.S	685615	S	Pus	obesity	Prostatic abscess	10.8	8100	GNB	1	GNB	Escherichia coli	R	R	S	S	S	R	S
149	G.S	675719	S	Pus	-	SDH	9.4	8400	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
150	J.S	680149	S	Pus	obesity	Intrabdominal collection	10.8	20700	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
151	B.K.J	693104	S	Tissue	diabetes	Diabetic Nephropathy with Diabetic foot	9.1	14600	GNB	1	GNB	Pseudomonas aeruginusa	R	R	S	R	S	R	S
152	C.S	689498	S	Tissue	vascular disease	Diffuse systemic sclerosis, gangrene foot	9.5	12900	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
153	A.S	689976	S	W/S	diabetes	Diabetic Foot with Cellulitis	10.8	13500	GNB	1	GNB	Escherichia coli	R	R	S	S	R	R	R
154	P	690421	S	Tissue	vascular disease	Crush leg injury	9	7600	GNB	1	GNB	Escherichia coli	R	S	S	S	R	R	R
155	G.S	690244	S	Tissue	others	Appendicitis	13.7	20900	GPC	1	GPC	Enterococcus avium	-	-	-	-	-	-	-
156	B.S	693174	S	Tissue	diabetes	Diabetic foot	11.8	21000	GNB	1	GNB	Proteus mirabilis	R	R	S	S	S	R	R
157	K.L.G	554810	S	Tissue	diabetes	Diabetic foot	9.1	13200	GNB	1	GNB	Pseudomonas aeruginusa	R	R	R	R	R	R	R
158	N.K	692140	S	W/S	others	lap adhesions	9.2	16900	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
159	M.B	472434	S	W/S	edema	ICH	10.4	9800	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
160	R.S.K	531374	S	Pus	vascular disease	Foot abscess	14.7	17700	GPC, GNB	1	GPC	Streptococcus agalactiae	-	-	-	-	-	-	-
161	U.K	83481	S	W/S	others	Appendicular perforation	10.3	10900	GNB, GPC	2	GNB	Escherichia coli	R	R	S	S	R	R	R
161	U.K	83481	S	W/S	others	Appendicular perforation	10.3	10900	GNB, GPC	2	GPC	Enterococcus faeceum	-	-	-	-	-	-	-
162	R.D	683834	S	Pus	obesity	Hemicolectomy	7.3	6800	GNB	1	GNB	Escherichia coli	R	R	S	R	R	R	R
163	K.S	688191	S	W/S	diabetes	CKD With DM2 with Diabetic Foot	7.8	8000	GNB	1	GNB	Proteus mirabilis	R	R	S	R	R	R	S
164	J.K	682275	S	W/S	vascular disease	Foot Gangrene	9.1	10400	GNB	1	GNB	Acinetobacter baumanii	R	R	S	R	R	R	R
165	T.K	688313	S	Pus	obesity	Fistula in ano	13	12900	GNB	1	GNB	Escherichia coli	R	R	S	S	S	R	S
166	K.K	6877	S	W/S	smoking	I&D	11.7	8900	GNB	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
167	P.S	687325	M	Tissue	diabetes	Diabetic Foot	11.4	20800	GNB	1	GNB	Enterobacter cloacae	R	R	R	R	R	R	R
168	J.K	670987	S	Tissue	smoking	Necrotising pancreatitis	11.8	10100	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
169	S.P.S	691152	S	W/S	smoking	Cellulitis	14.4	10300	GNB	1	GNB	Escherichia coli	R	S	S	S	R	R	R
170	K.S	505714	S	W/S	obesity	Cholecystectomy	8.1	8300	GNB	2	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
170	K.S	505714	S	W/S	obesity	Cholecystectomy	8.1	8300	GNB	2	GNB	Proteus mirabilis	R	R	S	S	R	R	R
171	J.S	684390	S	Tissue	diabetes	DM2 With HTN with Diabetic foot	9.8	3700	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
172	S.P.S	691152	S	Tissue	diabetes	DM2, cellulitis of leg	14.4	10300	GNB	1	GNB	Escherichia coli	R	S	S	S	R	R	R
173	D.T	712664	S	W/S	sepsis	Sepsis	12	1200	GNB	1	GNB	Serratia marcescens	-	-	-	-	S	-	S
174	P.S	716674	S	Pus	obesity	Scrotal abscess	8.2	10900	GNB	1	GNB	Escherichia coli	R	R	S	R	R	R	R
175	K.L	608448	S	W/S	vascular disease	Fracture Tibia	9.9	11700	GPC	1	GNB	Pseudomonas aeruginusa	R	R	S	R	R	R	R
176	P.K	710282	S	Tissue	vascular disease	Cellulitis thigh	9.7	21100	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
177	B.S	66021	S	Pus	obesity	Choledocholithiasis with sepsis	10	1100	GNCB	1	GNCB	Acinetobacter baumanii	R	R	R	R	R	R	R
178	P.K	576549	S	Pus	others	Lung Abscess	10.5	19300	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
179	S.S.S	716853	S	Pus	diabetes	Hemicolectomy	11.1	22700	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
180	T.A	715603	S	Pus	others	Appendicitis	10.1	16800	GNB	1	GNB	Pseudomonas aeruginusa	R	R	S	S	S	S	S
181	K.K.J	526357	M	W/S	immunosuppression	HTN DM2 Sepsis AKI	10.4	11800	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
182	R.S	704229	S	W/S	obesity	Prostatic abscess	10	14400	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
183	J.S	123610	S	W/S	-	perianal abscess	6.5	10200	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
184	V.G	672807	S	Pus	immunosuppression	Drain	10	8600	GNB	1	GNB	Escherichia coli	R	R	S	S	R	S	R
185	G.S	675719	S	W/S	others	MCA INFARCT	9	15700	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
186	P.S	714043	S	W/S	others	Gunshot injury	9.6	14100	GNCB	1	GNCB	Acinetobacter baumanii	R	R	R	R	R	R	R
187	S.K	702766	S	Pus	Sepsis	Perforation peritonitis	9.7	15800	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
188	S.S	718476	S	Pus	others	Psoas abscess drainage	10.4	11800	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
189	D.T	712664	S	Tissue	vascular disease	Gangrenous foot	11.7	20900	GNB	1	GNB	Serratia marcescens	R	R	R	R	R	R	R
190	D.K	708500	S	Pus	immunosuppression	Liver transplant	7.2	26000	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
191	V.K	678542	S	W/S	-	laprotomy	11.7	14100	GNB	1	GNB	Pseudomonas aeruginusa	R	R	S	S	R	R	S
192	B.K	720699	S	W/S	vascular disease	Fracture Tibia	9.9	12800	GNB	1	GNB	Pseudomonas mendocina	R	R	S	S	S	R	S
193	D.S	717696	S	Pus	-	Appendicitis	12.3	19600	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
194	R.S	475297	S	W/S	diabetes	Diabetic foot	10.9	13300	GNB	1	GPC	Enterococcus faecalis	-	R	-	-	-	-	-
195	N.S	625984	S	Tissue	diabetes	DM2, Diabetic foot	10.4	11400	GNB	1	GNB	Pseudomonas aeruginusa	R	R	S	S	R	R	S
196	R.S	720046	S	Pus	vascular disease	Prostatic abscess	14.7	10400	GNB, GPC	1	GNB	Escherichia coli	R	S	S	R	R	R	R
197	M.S	296951	M	Pus	immunosuppression	DM2 with CKD	7.8	10400	GNB	1	GNB	Escherichia coli	R	R	S	S	S	R	R
198	L	721448	S	W/S	Advanced age	Perianal abscess	9.3	4200	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
199	R.S	721475	M	Pus	obesity	Tubercular empyema	12.7	11200	GNB	1	GNB	Escherichia coli	R	R	S	R	R	R	R
200	R.K	722042	S	Pus	smoking	Testicular abscess	10.9	46200	GNB, GPC	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
201	M.A	722134	S	W/S	diabetes	Diabetic foot	7.9	8100	GNB, GPC	2	GNB	Escherichia coli	R	R	S	S	R	R	R
201	M.A	722134	S	W/S	diabetes	Diabetic foot	7.9	8100	GNB, GPC	2	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
202	K.R	722283	S	W/S	Advanced age	Cellulitis	6	13900	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
203	D.V	719767	S	Pus	immunosuppression	USG guided cathetar drainage	8.7	31900	GNB	2	GNB	Escherichia coli	R	R	R	R	R	R	R
203	D.V	719767	S	Pus	immunosuppression	USG guided cathetar drainage	8.7	31900	GNB	2	GNB	Pseudomonas aeruginusa	R	R	R	R	R	R	R

s.no:	NAME	MRD NO	CPM	IMP	MEM	ERT	DOR	AK	GEN	CIP	LEVO	MIN	TG	COT	PEN	OXA	CX	ERY	CLI	LZ	DPT	VAN	TEC	TET	RIF	probable ESBL	confirmed ESBL	PROBABLE AmpC	CONFIRMED AmpC	MBL	MECHANISMS	MRSA	VRE	MDR/XDR/PDR
136	R.S	691343	R	R	R	R	R	R	R	R	R	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
137	R.S	693969	S	S	R	S	R	S	S	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
138	N.Y	688836	R	R	R	R	R	-	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	MDR
139	S.S	690573	R	S	S	R	S	S	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	-	**ESBL,AmpC**	-	-	MDR
140	A.K	686742	R	R	R	R	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
141	G.S	563571	-	-	-	-	-	-	S	R	R	-	-	S	R	R	S	S	S	S	S	S	S	-	S	-	-	-	-	-	-	YES	-	MDR
142	H.S	695085	R	R	R	R	R	S	R	R	R	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
143	I.D	676479	R	R	R	R	R	R	R	R	R	S	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	POS	**ESBL,AmpC.MBL**	-	-	XDR
144	A.S	559296	R	S	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
145	S.S	675037	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
146	H.S	688760	R	S	S	S	R	S	S	R	R	R	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	MDR
147	A.K	693934	R	R	R	R	R	R	R	R	R	S	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
148	S.S	685615	R	S	S	R	S	S	S	S	S	S	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	-	-	MDR
149	G.S	675719	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR
150	J.S	680149	R	R	R	R	R	S	S	R	R	R	R	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
151	B.K.J	693104	S	S	S	R	R	S	S	S	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	MDR
152	C.S	689498	-	-	-	-	-	-	R	R	R	-	S	R	R	-	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	YES	NO	MDR
153	A.S	689976	R	S	S	S	R	S	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	MDR
154	P	690421	S	S	S	S	S	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	MDR
155	G.S	690244	-	-	-	-	-	-	S	R	R	-	S	-	R	-	S	S	S	S	-	S	S	R	-	-	-	-	-	-	-	-	-	MDR
156	B.S	693174	R	R	R	S	R	S	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	-	**AmpC**	-	-	XDR
157	K.L.G	554810	R	R	R	R	R	R	R	R	R	R	-	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
158	N.K	692140	R	R	S	S	S	R	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	MDR
159	M.B	472434	-	-	-	-	-	-	-	-	-	-	-	-	R	R	R	S	S	S	S	S	R	R	R	-	-	-	-	-	-	YES	-	MDR
160	R.S.K	531374	-	-	-	-	-	-	-	-	S	-	S	-	S	R	R	R	R	R	R	S	R	S	R	-	-	-	-	-	-	-	-	MDR
161	U.K	83481	R	S	S	R	R	S	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	MDR
161	U.K	83481	-	-	-	-	R	-	S	R	S	-	-	-	R	-	R	-	-	-	-	R	S	S	-	-	-	-	-	-	-	-	NO	-
162	R.D	683834	R	S	S	S	R	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	MDR
163	K.S	688191	S	S	S	R	R	S	S	S	S	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	MDR
164	J.K	682275	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	-	**ESBL,AmpC**	-	-	XDR
165	T.K	688313	S	S	S	R	S	S	S	R	S	S	S	S	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MDR
166	K.K	6877	-	-	-	-	-	-	S	R	-	-	-	S	R	R	R	R	-	S	S	S	S	-	S	-	-	-	-	-	-	YES	-	MDR
167	P.S	687325	R	R	R	R	R	R	R	S	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	NEG	**AmpC**	-	-	MDR
168	J.K	670987	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR
169	S.P.S	691152	R	S	S	S	R	S	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	MDR
170	K.S	505714	R	S	R	R	R	S	R	R	R	R	R	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	XDR
170	K.S	505714	R	S	S	R	R	S	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	XDR
171	J.S	684390	R	R	S	R	R	R	R	R	R	R	R	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	XDR
172	S.P.S	691152	R	S	S	S	R	S	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
173	D.T	712664	-	S	-	-	-	S	S	-	-	-	S	-	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
174	P.S	716674	S	S	S	S	R	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	-	**AmpC**	-	-	MDR
175	K.L	608448	S	S	S	R	S	S	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	MDR
176	P.K	710282	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	XDR
177	B.S	66021	R	R	R	R	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	XDR
178	P.K	576549	R	R	R	R	R	R	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR
179	S.S.S	716853	R	S	S	S	R	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	XDR
180	T.A	715603	S	S	S	R	S	S	S	S	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
181	K.K.J	526357	R	R	R	R	R	R	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR
182	R.S	704229	R	R	R	R	R	R	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	XDR
183	J.S	123610	R	S	S	R	R	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	-	**AmpC**	-	-	XDR
184	V.G	672807	S	S	S	S	R	S	S	S	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	MDR
185	G.S	675719	R	S	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	XDR
186	P.S	714043	R	R	R	R	R	R	S	R	R	S	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	POS	MBL	-	-	XDR
187	S.K	702766	R	R	R	R	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	POS	**AmpC,MBL**	-	-	XDR
188	S.S	718476	R	S	S	S	R	S	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	XDR
189	D.T	712664	R	S	R	R	S	S	S	S	S	S	R	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	MDR
190	D.K	708500	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
191	V.K	678542	R	R	S	R	R	S	S	S	S	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	POS	MBL	-	-	MDR
192	B.K	720699	S	S	S	R	R	S	S	S	S	S	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	POS	MBL	-	-	MDR
193	D.S	717696	-	-	-	-	-	-	-	-	-	-	-	S	R	R	R	R	R	S	R	S	S	S	S	-	-	-	-	-	-	YES	NO	MDR
194	R.S	475297	-	-	-	-	-	-	S	S	S	-	-	-	S	-	S	-	S	S	S	S	S	R	R	-	-	-	-	-	-	-	-	MDR
195	N.S	625984	S	S	S	R	S	S	S	R	R	R	R	R	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MDR
196	R.S	720046	R	S	S	S	R	S	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	-	**ESBL,AmpC**	-	-	MDR
197	M.S	296951	R	S	R	R	S	S	S	R	R	S	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
198	L	721448	S	S	R	S	R	S	R	R	R	R	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	-	-	MDR
199	R.S	721475	R	S	S	S	R	S	R	R	R	R	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	-	-	MDR
200	R.K	722042	R	R	R	R	S	R	S	S	S	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	-	AmpC	-	-	XDR
201	M.A	722134	R	S	S	S	R	S	S	R	R	R	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
201	M.A	722134	-	-	-	-	-	R	S	R	R	-	-	-	R	R	R	R	R	S	S	S	S	S	S	-	-	-	-	-	-	YES	-	MDR
202	K.R	722283	-	-	-	-	-	R	S	R	R	-	-	R	R	R	R	R	R	S	S	S	S	S	R	-	-	-	-	-	-	YES	-	MDR
203	D.V	719767	R	R	R	R	R	S	R	R	R	R	S	R	-	R	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	POS	MBL	-	-	XDR
203	D.V	719767	R	R	R	R	R	R	R	R	R	R	R	R	-	R	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR

s.no:	NAME	MRD NO	AGE	SEX	DATE OF RECEIVING SAMPLE	loc	OUTCOME	LAB NO	SAMPLE	NUMBER OF DAYS	DATE OF ADMISSION	DATE OF DISCHARGE	SITE OF WOUND	CLASSIFICATION	TYPE	SURGERY DONE INSIDE
204	P.C	722255	88	M	5/5/2019	SG	DISCHARGED	4534	W/S	4	5/5/2019	5/8/2019	Foot	dirty	Diabetic ulcer	Debridement
205	A.S	705151	22	M	5/6/2019	SG	DISCHARGED	4544	Pus	8	4/9/2019	5/16/2019	Leg	dirty	Burns	NA
205	A.S	705151	22	M	5/6/2019	SG	DISCHARGED	4544	Pus	8	4/9/2019	5/16/2019	Leg	dirty	Burns	NA
206	B.K	722442	35	F	5/6/2019	SG	DISCHARGED	4558	Pus	4	5/6/2019	5/9/2019	Hypochondrium	contaminated	Post op	Cholecystectomy
207	N.S	625984	57	F	5/2/2019	MED	DISCHARGED	4454	Tissue	6	5/2/2019	5/7/2019	Foot	dirty	Diabetic ulcer	Debridement
207	N.S	625984	57	F	5/2/2019	MED	DISCHARGED	4454	Tissue	6	5/2/2019	5/7/2019	Foot	dirty	Diabetic ulcer	Debridement
208	M	713351	43	F	5/5/2019	MED	DISCHARGED	4526	Pus	24	4/22/2019	5/16/2019	Abdomen	contaminated	Post op	Cholelithiasis & Renal Pelvic abscess
209	K.K	709571	35	F	5/5/2019	SG	DISCHARGED	4528	W/S	29	4/16/2019	5/15/2019	Leg	dirty	Leg ulcer	NA
210	P.C	722255	88	M	5/7/2019	SG	DISCHARGED	4574	W/S	4	5/5/2019	5/8/2019	Foot	dirty	Diabetic ulcer	NA
211	R	701248	38	F	5/7/2019	SG	DISCHARGED	4585	W/S	49	4/13/2019	5/31/2019	Leg	dirty	Burns	NA
212	M.L	722235	68	M	5/7/2019	SG	DISCHARGED	4599	W/S	8	5/5/2019	5/12/2019	Abdomen	contaminated	Post op	Lap cholecystectomy
213	J.K	265693	46	F	5/8/2019	SG	DISCHARGED	4620	W/S	10	5/5/2019	5/15/2019	-	clean	Post op	Herniorrhaphy
214	M.K	718543	25	M	5/9/2019	SG	DISCHARGED	4647	W/S	12	4/29/2019	5/11/2019	Leg	contaminated	Post op	External fixation
215	M.P	725839	39	M	5/10/2019	SG	DISCHARGED	4677	Tissue	50	5/10/2019	6/29/2019	Leg	dirty	Burns	NA
215	M.P	725839	39	M	5/10/2019	SG	DISCHARGED	4677	Tissue	50	5/10/2019	6/29/2019	Leg	dirty	Burns	NA
216	G.S	726111	67	M	5/10/2019	SG	DISCHARGED	4678	Tissue	14	5/10/2019	5/23/2019	Leg	dirty	Post op	NA
217	B.S	725380	45	M	5/10/2019	SG	DISCHARGED	4685	Tissue	15	5/9/2019	5/23/2019	Foot	clean contaminated	Traumatic wound	Dorsal fracture
218	B.P.S	724634	69	M	5/10/2019	SG	DISCHARGED	4687	W/S	15	5/9/2019	5/23/2019	Tibia	clean	Post op	Splenectomy
219	U	726180	54	F	5/11/2019	SG	DISCHARGED	4692	Pus	18	5/10/2019	5/27/2019	Abdomen	dirty	Abscess	NA
220	A.K.V	751219	55	M	5/11/2019	SG	DAMA	4703	Tissue	4	5/9/2019	5/12/2019	-	dirty	Leg ulcer	Debridement
221	D.P.S	700242	72	M	5/11/2019	MED	DAMA	4704	W/S	6	5/10/2019	5/15/2019	Leg	dirty	Diabetic ulcer	NA
222	K.R	640049	55	F	5/11/2019	MED	DISCHARGED	4707	W/S	7	4/24/2019	4/30/2019	Foot	dirty	Diabetic ulcer	NA
223	G.S	730644	67	M	5/11/2019	MED	DISCHARGED	4709	Tissue	17	5/10/2019	5/26/2019	Foot	dirty	Diabetic ulcer	I & D
224	R.S	726393	63	M	5/12/2019	SG	DISCHARGED	4722	Pus	5	5/11/2019	5/15/2019	Pancreas	dirty	Post op	NA
225	P.S.D	727017	26	M	5/12/2019	SG	DISCHARGED	4738	Pus	1	5/12/2019	5/12/2019	W/S	clean contaminated	Post op	Prostatectomy
226	S	829847	28	M	11/8/2019	SG	DISCHARGED	10708	W/S	10	10/15/2019	10/25/2019	Leg	contaminated	Traumatic wound	RSA External fixator leg
227	J.K	487401	76	F	11/7/2019	SG	DISCHARGED	10671	W/S	29	10/30/2019	11/28/2019	abdomen	contaminated	Post op	Rt Hemicolectomy
228	R.S	814539	35	M	10/10/2019	SG	DISCHARGED	9752	W/S	18	9/20/2019	10/7/2019	Pelvis	contaminated	Traumatic wound	RSA
229	K.S	828955	30	M	10/29/2019	SG	DISCHARGED	10356	Pus	11	10/13/2019	10/23/2019	Spine	clean contaminated	Post op	Cervical vertebectomy and decompressive fixation with DM2
230	K.K	396128	51	F	10/3/2019	SG	DISCHARGED	9519	W/S	44	9/21/2019	11/4/2019	Abdomen	contaminated	Post op	Exploratory laparotomy
231	P.K	138750	72	F	9/20/2019	SG	DISCHARGED	9054	W/S	24	9/2/2019	9/25/2019	Abdomen	clean contaminated	Post op	TAH
231	P.K	138750	72	F	9/20/2019	SG	DISCHARGED	9054	W/S	24	9/2/2019	9/25/2019	Abdomen	clean contaminated	Post op	TAH
232	G	793029	70	F	9/7/2019	SG	DISCHARGED	8580	W/S	34	8/22/2019	10/4/2019	Leg	clean contaminated	Post op	Tibia plating and fixation
233	S.D	798658	47	F	9/20/2019	SG	DISCHARGED	9053	W/S	9	8/30/2019	9/7/2019	Abdomen	clean contaminated	Post op	TAH
234	H.K	709324	36	F	8/8/2019	SG	DISCHARGED	7498	W/S	7	8/3/2019	8/9/2019	Abdomen	Clean contaminated	Post op	LSCS
235	T.A	120212	37	F	7/30/2019	SG	DISCHARGED	7159	W/S	2	7/19/2019	7/20/2019	Abdomen	Clean contaminated	Post op	LSCS
236	P.K	582349	60	F	7/30/2019	SG	DISCHARGED	7122	Pus	53	7/25/2019	9/16/2019	Abdomen	clean contaminated	Post op	TAH with BSO
237	R.S	770286	37	M	7/30/2019	SG	DISCHARGED	7155	W/S	28	7/18/2019	8/14/2019	Leg	contaminated	Traumatic wound	External fixation
238	W.A	772931	65	M	8/14/2019	SG	DISCHARGED	7740	W/S	19	7/29/2019	8/16/2019	Abdomen	contaminated	Traumatic wound	Exploratory laprotomy
239	B.R	184490	46	M	8/15/2019	SG	DISCHARGED	7770	W/S	24	8/10/2019	9/2/2019	Abdomen	contaminated	Post op	Gastrojejunostomy
240	M.S	784511	56	M	8/16/2019	SG	DISCHARGED	7781	W/S	19	8/8/2019	8/26/2019	Abdomen	dirty	Post op	Exploratory laprotomy with resection and bowel anastomosis
241	M.S	603871	24	F	7/17/2019	SG	DISCHARGED	6609	W/S	6	7/3/2019	7/8/2019	Abdomen	contaminated	Post op	LSCS
242	K.A	760351	65	M	7/15/2019	SG	DISCHARGED	6664	W/S	27	7/3/2019	7/29/2019	Abdomen	dirty	Post op	Exploratory laprotomy
243	P.K	717766	52	M	7/17/2019	SG	DISCHARGED	6724	W/S	14	7/9/2019	7/22/2019	Abdomen	contaminated	Traumatic wound	Exploratory laprotomy and ileosotmy
244	S	500262	27	F	7/19/2019	SG	DISCHARGED	6788	W/S	14	7/9/2019	7/22/2019	Abdomen	contaminated	Post op	LSCS
245	J.S	762620	45	M	7/19/2019	SG	DISCHARGED	6795	W/S	41	7/7/2019	8/16/2019	Leg	contaminated	Traumatic wound	External fixation
246	R	747820	50	F	6/13/2019	SG	DISCHARGED	6515	W/S	8	6/13/2019	6/20/2019	Breast	clean	Post op	MRM
246	R	747820	50	F	6/13/2019	SG	DISCHARGED	6515	W/S	8	6/13/2019	6/20/2019	Breast	clean	Post op	MRM
247	R.G	749614	32	F	6/22/2019	SG	DISCHARGED	5939	W/S	7	6/17/2019	6/23/2019	Abdomen	contaminated	Traumatic wound	Exploratory laprotomy
248	B.S	746643	69	M	6/19/2019	SG	DISCHARGED	5838	W/S	26	6/11/2019	7/6/2019	leg	contaminated	Traumatic wound	Femur plating
249	H.K	736085	29	F	6/13/2019	SICU	DISCHARGED	5657	W/S	28	5/26/2019	6/22/2019	Abdomen	contaminated	Post op	Exploratory laprotomy
250	S.K	728775	31	M	6/18/2019	SG	DISCHARGED	5829	W/S	38	5/15/2019	6/22/2019	Leg	clean contaminated	Traumatic wound	ORIF
251	K.S	253243	56	M	6/21/2019	SG	DISCHARGED	5911	W/S	17	6/7/2019	6/23/2019	Abdomen	clean contaminated	Post op	Liver transplant
252	G.S	729391	29	M	5/27/2019	SG	DISCHARGED	5038	Tissue	29	5/15/2019	6/12/2019	Leg	clean contaminated	Post op	TENS
253	I.R.G	719285	58	F	5/14/2019	SG	DISCHARGED	4780	W/S	23	4/30/2019	5/22/2019	Abdomen	contaminated	Post op	Hemicolectomy
254	R.K	661456	64	M	4/1/2019	SICU	DISCHARGED	3452	W/S	90	1/30/2019	4/30/2019	Cranium	clean	Post op	Cranioplasty
255	K.S	291310	36	M	4/1/2019	SG	DISCHARGED	3467	W/S	25	3/23/2019	4/16/2019	Abdomen	contaminated	Post op	Exploratory laprotomy
256	P.S	694875	37	M	3/30/2019	SG	DISCHARGED	3405	W/S	20	3/24/2019	4/12/2019	Abdomen	contaminated	Post op	Exploratory laprotomy
257	N.Y	688836	50	M	3/26/2019	SG	DAMA	3277	W/S	48	3/14/2019	3/30/2019	Abdomen	dirty	Post op	Exploratory laprotomy
258	S.M	670445	49	F	3/11/2019	SG	DISCHARGED	2806	W/S	27	3/11/2019	5/6/2019	Abdomen	clean	Post op	Paraumblical hernia repair
259	R.S	691343	59	M	3/25/2019	SICU	DISCHARGED	3244	W/S	43	3/18/2019	4/29/2019	Cranium	clean	Post op	Cranioplasty
260	S.K	628883	18	F	3/26/2019	SG	DISCHARGED	3278	W/S	10	3/17/2019	3/26/2019	Abdomen	dirty	Post op	Exploratory laprotomy
261	H.S	672244	24	M	2/2/2019	SG	DISCHARGED	2180	W/S	23	1/17/2019	2/8/2019	Abdomen	dirty	Post op	Exploratory laprotomy with Gallstone ileus
262	R.K	647821	76	M	1/29/2019	SG	DISCHARGED	1150	Pus	23	1/17/2019	2/8/2019	Throat	clean contaminated	Post op	Laryngectomy
263	P.S	660139	21	M	2/2/2019	SG	DISCHARGED	1332	W/S	19	1/26/2019	2/13/2019	Abdomen	contaminated	Post op	Rt Hemicolectomy
264	R.K	653009	52	F	1/29/2019	SG	DISCHARGED	1143	W/S	10	1/13/2019	1/23/2019	Abdomen	dirty	Post op	Exploratory laprotomy
265	V.K	637895	56	F	2/11/2019	SG	DISCHARGED	1697	W/S	15	2/4/2019	2/18/2019	Abdomen	contaminated	Post op	Cholecystectomy
266	H.S	659150	24	M	2/13/2019	SG	DISCHARGED	1788	W/S	11	2/6/2019	2/17/2019	Abdomen	dirty	Post op	Laprotomy
267	I.S.G	56780	32	M	1/14/2019	SG	DISCHARGED	390	W/S	4	1/2/2019	1/5/2019	Leg	clean contaminated	Traumatic wound	Tibia plating and fixation

s.no:	NAME	MRD NO	MANAGEMENT	SAMPLE	RISK FACTOR	DIAGNOSIS	HEMOGLOBIN	TLC	GRAM STAIN	NO OF ISOLATES	GROWTH	ORGANISM	AMP	AMC	CSL	TZP	TIC	CI	CAZ
204	P.C	722255	S	W/S	diabetes	Diabetic foot	11.8	8000	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
205	A.S	705151	M	Pus	smoking	Electric burn	11.4	21600	GNB	2	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
205	A.S	705151	M	Pus	smoking	Electric burn	11.4	21600	GNB	2	GNB	Providentia stuarti	R	R	R	R	S	R	R
206	B.K	722442	S	Pus	obesity	Cholecystitis	10.7	15900	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
207	N.S	625984	S	Tissue	diabetes	Diabetic foot	10.8	11800	GNB, GNCB	2	GNCB	Acinetobacter baumanii	R	R	R	R	R	R	R
207	N.S	625984	S	Tissue	diabetes	Diabetic foot	10.8	11800	GNB, GNCB	2	GNB	Pseudomonas aeruginusa	R	R	S	S	R	R	S
208	M	713351	S	Pus	others	Cholelithiasis & Renal Pelvic abscess	10.9	15900	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
209	K.K	709571	M	W/S	vascular disease	Cellulitis	11.8	22600	GNCB	1	GNCB	Acinetobacter baumanii	R	R	R	R	R	R	R
210	P.C	722255	M	W/S	diabetes	Diabetic foot	11.8	5100	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
211	R	701248	M	W/S	others	55% old flame burns	10.5	13000	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
212	M.L	722235	S	W/S	others	Choledocholithiasis with sepsis	16.1	12800	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
213	J.K	265693	S	W/S	others	Hernia	6.7	7700	GNB	1	GNB	Escherichia coli	R	R	S	R	R	R	R
214	M.K	718543	S	W/S	vascular disease	Fracture tibia	11.9	10600	no m/o	1	GPC	Enterococcus faeceum	-	-	-	-	-	-	-
215	M.P	725839	M	Tissue	smoking	burn	9	10600	GPC, GNB	2	GNB	Escherichia coli	R	R	R	R	R	R	R
215	M.P	725839	M	Tissue	smoking	burn	9	10600	GPC, GNB	2	GNB	Proteus mirabilis	R	R	R	R	R	R	R
216	G.S	726111	M	Tissue	vascular disease	P/C/O Amputation above knee	9.1	20200	GNB	1	GNB	Morganella morganii	R	R	S	S	S	R	S
217	B.S	725380	S	Tissue	vascular disease	Dorsal fracure	8.6	25500	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
218	B.P.S	724634	S	W/S	immunosuppression	Splenectomy	8.9	4800	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
219	U	726180	M	Pus	obesity	Lower abdomen cellulitis	9.6	16800	GPC, GNB	1	GNB	Escherichia coli	R	R	S	R	R	R	R
220	A.K.V	751219	S	Tissue	vascular disease	NA	6.4	16400	GNB	1	GNB	Klebsiella pneumoniae	R	S	S	S	R	R	R
221	D.P.S	700242	M	W/S	sepsis	DM2 with HTN with MODS	11.6	12200	GNB	1	GNB	Pseudomonas aeruginusa	R	R	S	S	S	R	S
222	K.R	640049	M	W/S	diabetes	DM2 with HTN with CAD	7.9	10100	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
223	G.S	730644	S	Tissue	diabetes	POST CABG WITH DIABETIC FOOT	8.9	17900	GNB	1	GNB	Pseudomonas aeruginusa	R	R	S	S	S	R	S
224	R.S	726393	M	Pus	Advanced age	Small pseudocyst pancreas.	8.3	7000	GNB	1	GNB	Escherichia coli	R	S	S	S	R	R	R
225	P.S.D	727017	S	Pus	smoking	Median lobe prostatitis	-	-	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
226	S	829847	S	W/S	vascular disease	RSA Fracture tibia	9.1	12300	GNB	1	GNB	Pseudomonas aeruginusa	-	-	S	S	S	-	S
227	J.K	487401	S	W/S	Advanced age	Hemicolectomy	13	11000	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
228	R.S	814539	S	W/S	immobilization	Dual plating of pelvis, fixation, nailing	12.1	14300	GNB	1	GNB	Pseudomonas aeruginusa	-	-	R	R	R	R	R
229	K.S	828955	S	Pus	immobilization	Potts spine	11	12000	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-
230	K.K	396128	S	W/S	Advanced age	Ulcerative colitis	10	9900	GNCB	1	GNCB	Acinetobacter baumanii	-	-	S	R	R	-	-
231	P.K	138750	S	W/S	Advanced age	TAH	9.7	12600	GNB	1	GNB	Acinetobacter baumanii	-	-	R	R	R	R	R
231	P.K	138750	S	W/S	Advanced age	TAH	9.7	12600	GNB	1	GNCB	Klebsiella pneumoniae	-	R	S	S	-	S	R
232	G	793029	S	W/S	vascular disease	fracture tibia	9.9	13900	GNB	1	GNB	Escherichia coli	R	S	S	S	-	R	R
233	S.D	798658	S	W/S	obesity	TAH	8.9	11200	GNB	1	GNB	Escherichia coli	R	R	S	S	S	S	S
234	H.K	709324	S	W/S	others	LSCS	13	11500	GPC	1	GPC	Enterococcus faecalis	-	-	-	-	-	-	-
235	T.A	120212	S	W/S	others	LSCS	11	6780	GNB	1	GNB	Klebsiella pneumoniae	R	-	S	S	R	R	R
236	P.K	582349	S	Pus	concurrent infection at another site	-	12	8980	GNB	1	GNB	Escherichia coli	R	S	S	S	S	R	R
237	R.S	770286	S	W/S	vascular disease	external fixation	10	13000	GNB	1	GNB	Pseudomonas aeruginusa	R	R	S	S	R	R	S
238	W.A	772931	S	W/S	smoking	Trauma	12.3	13400	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
239	B.R	184490	S	W/S	immobilization	-	11	15000	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
240	M.S	784511	S	W/S	diabetes	SAIO	10	11400	GNB	1	GNB	Klebsiella pneumoniae	-	R	R	R	-	R	R
241	M.S	603871	S	W/S	others	LSCS	10.3	15700	GNB	1	GNB	Pseudomonas aeruginusa	R	R	S	S	S	R	S
242	K.A	760351	S	W/S	diabetes	-	11	14000	GNB	1	GNB	Klebsiella pneumoniae	R	-	R	R	R	R	R
243	P.K	717766	S	W/S	others	Gunshout wound	11.3	9900	GNB	1	GNB	Klebsiella pneumoniae	R	-	R	R	R	R	R
244	S	500262	S	W/S	others	LSCS	9.9	11200	GNB	1	GNB	Proteus vulgaris	R	S	S	S	S	S	S
245	J.S	762620	S	W/S	immobilization	RSA with crush injury	8.9	7300	GNCB	1	GNB	Acinetobacter baumanii	-	-	R	R	R	R	R
246	R	747820	S	W/S	immunosuppression	Ca Breast	9.7	8900	GNB	2	GNCB	Acinetobacter baumanii	R	R	R	R	R	R	R
246	R	747820	S	W/S	immunosuppression	Ca Breast	9.7	8900	GNB	2	GNB	Pseudomonas aeruginusa	-	R	S	S	R	-	S
247	R.G	749614	S	W/S	obesity	RSA	9.4	10600	GNB	1	GNB	Klebsiella pneumoniae	-	-	S	S	R	R	R
248	B.S	746643	S	W/S	immobilization	fracture femur	8.8	12000	GNB	1	GNB	Acinetobacter baumanii	-	-	S	R	R	R	R
249	H.K	736085	S	W/S	vascular disease	ileal perforation with loop distension	9.9	9864	GNB	1	GNB	Pseudomonas aeruginusa	R	R	R	R	R	R	R
250	S.K	728775	S	W/S	immobilization	Fracture tibia	10.4	10500	GNCB	1	GNCB	Acinetobacter baumanii	-	-	R	R	R	-	-
251	K.S	253243	S	W/S	immunosuppression	Liver transplant	10.1	9878	GNB	1	GNB	Klebsiella pneumoniae	-	R	S	S	-	R	R
252	G.S	729391	S	Tissue	smoking	-	12	16500	GNB	1	GNB	Enterobacter cloacae	R	R	R	R	R	R	R
253	I.R.G	719285	S	W/S	obesity	hemicolectomy	9.6	8970	GNB	1	GNB	Klebsiella pneumoniae	-	-	R	R	R	R	R
254	R.K	661456	S	W/S	edema	cranioplasty	8.8	13400	GNB	1	GNB	Escherichia coli	R	R	S	R	R	S	S
255	K.S	291310	S	W/S	others	-	9.9	11000	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
256	P.S	694875	S	W/S	others	-	11	10500	GNB	1	GNB	Escherichia coli	S	S	S	S	S	S	S
257	N.Y	688836	S	W/S	others	-	10.8	10800	GNB	1	GNB	Acinetobacter baumanii	-	-	R	R	R	R	R
258	S.M	670445	S	W/S	obesity	Hernia	10	9890	GNB	1	GNB	Escherichia coli	S	S	S	S	S	S	S
259	R.S	691343	S	W/S	edema	SDH	8.7	12000	GNCB	1	GNCB	Acinetobacter baumanii	-	-	S	R	R	R	R
260	S.K	628883	S	W/S	immunosuppression	-	9.9	12400	GNB	1	GNB	Escherichia coli	S	S	S	S	S	S	S
261	H.S	672244	S	W/S	concurrent infection at another site	Exploratory laprotomy with Gallstone ileus	9.6	13600	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
262	R.K	647821	S	Pus	immunosuppression	calarynx	14	4786	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
263	P.S	660139	S	W/S	immobilization	Ca colon	11	14500	GNB	1	GNB	Escherichia coli	R	R	R	R	R	R	R
264	R.K	653009	S	W/S	others	SAIO	9.8	16300	GNB	1	GNB	Pseudomonas aeruginusa	R	R	R	R	R	R	R
265	V.K	637895	S	W/S	immunosuppression	Cholangiocarcinoma	11	9989	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
266	H.S	659150	S	W/S	immobilization	-	13	10100	GNB	1	GNB	Klebsiella pneumoniae	R	R	R	R	R	R	R
267	I.S.G	56780	S	W/S	concurrent infection at another site	fracture	10.2	10300	GPC	1	GPC	Staphylococcus aureus	-	-	-	-	-	-	-

s.no:	NAME	MRD NO	CPM	IMP	MEM	ERT	DOR	AK	GEN	CIP	LEVO	MIN	TG	COT	PEN	OXA	CX	ERY	CLI	LZ	DPT	VAN	TEC	TET	RIF	probable ESBL	confirmed ESBL	PROBABLE AmpC	CONFIRMED AmpC	MBL	MECHANISMS	MRSA	VRE	MDR/XDR/PDR
204	P.C	722255	-	-	-	-	-	-	-	-	-	-	-	S	R	S	S	S	R	S	S	S	S	S	S	-	-	-	-	-	-	NO	-	MDR
205	A.S	705151	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	POS	MBL	-	-	XDR
205	A.S	705151	R	R	R	R	R	R	R	R	R	R	R	R	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	POS	**ESBL,MBL**	-	-	XDR
206	B.K	722442	R	R	R	R	S	R	S	S	R	R	S	S	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	POS	MBL	-	-	XDR
207	N.S	625984	R	R	R	R	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
207	N.S	625984	S	S	S	R	S	S	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	MDR
208	M	713351	R	R	R	R	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	XDR
209	K.K	709571	R	R	R	R	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	XDR
210	P.C	722255	-	-	-	-	-	-	-	-	-	-	-	-	S	S	S	S	S	S	S	S	S	S	S	-	-	-	-	-	-	NO	-	-
211	R	701248	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	XDR
212	M.L	722235	R	S	S	S	R	S	R	R	R	R	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	XDR
213	J.K	265693	S	S	S	R	S	S	S	R	R	S	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	-	-	MDR
214	M.K	718543	-	-	-	-	-	-	R	R	R	-	-	-	R	-	R	-	S	R	R	R	S	R	R	-	-	-	-	-	-	-	YES	MDR
215	M.P	725839	S	R	R	R	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	XDR
215	M.P	725839	S	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	POS	MBL	-	-	XDR
216	G.S	726111	S	R	S	R	R	S	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	POS	MBL	-	-	MDR
217	B.S	725380	-	-	-	-	-	S	S	R	R	-	-	-	R	R	R	S	S	S	S	S	S	S	S	-	-	-	-	-	-	YES	-	MDR
218	B.P.S	724634	-	-	-	-	-	R	S	R	R	-	-	S	R	R	R	R	R	S	S	S	S	S	S	-	-	-	-	-	-	YES	-	MDR
219	U	726180	S	S	S	S	S	S	S	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	MDR
220	A.K.V	751219	R	S	S	S	R	S	S	R	R	R	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
221	D.P.S	700242	S	S	S	R	S	S	S	S	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
222	K.R	640049	R	R	R	R	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	XDR
223	G.S	730644	S	S	S	S	S	S	S	S	S	R	R	R	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
224	R.S	726393	R	S	R	S	R	S	S	R	R	R	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	POS	-	-	-	**ESBL**	-	-	MDR
225	P.S.D	727017	-	-	-	-	-	R	S	R	R	-	-	-	R	S	S	S	S	S	S	S	S	S	S	-	-	-	-	-	-	NO	-	-
226	S	829847	S	S	S	-	-	S	S	S	S	S	-	-	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MDR
227	J.K	487401	R	R	R	R	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
228	R.S	814539	R	R	R	-	-	R	R	S	R	R	-	-	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	XDR
229	K.S	828955	-	-	-	-	-	R	R	R	R	-	-	R	R	R	R	R	R	S	S	S	S	S	R	-	-	-	-	-	-	YES	-	MDR
230	K.K	396128	-	S	R	R	R	R	R	R	R	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
231	P.K	138750	R	R	R	-	R	R	R	S	R	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
231	P.K	138750	S	S	S	S	S	S	R	R	-	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	-	AmpC	-	-	MDR
232	G	793029	S	S	R	S	-	S	R	R	-	-	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	MDR
233	S.D	798658	R	S	S	S	S	S	S	S	S	S	S	R	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
234	H.K	709324	-	-	-	-	-	-	R	R	R	-	-	-	S	-	R	R	-	S	S	S	S	R	-	-	-	-	-	-	-	-	-	MDR
235	T.A	120212	S	S	S	R	R	S	S	S	-	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	-
236	P.K	582349	R	S	S	S	S	S	R	R	-	-	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	-	**ESBL**	-	-	MDR
237	R.S	770286	S	R	S	-	S	S	S	R	R	-	-	R	-	-	R	-	-	-	-	-	-	-	-	-	-	Y	NEG	-	-	-	-	MDR
238	W.A	772931	R	R	R	R	R	S	S	R	-	S	S	R	-	-	S	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	MDR
239	B.R	184490	R	R	R	R	R	R	R	R	-	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
240	M.S	784511	R	R	R	R	R	R	R	R	-	-	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	POS	MBL	-	-	XDR
241	M.S	603871	S	S	S	-	S	S	S	R	S	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	MDR
242	K.A	760351	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	XDR
243	P.K	717766	R	R	R	R	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	XDR
244	S	500262	S	S	S	S	S	S	S	S	S	S	S	S	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
245	J.S	762620	R	R	R	R	R	S	R	R	R	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	XDR
246	R	747820	R	R	R	R	-	R	R	R	-	-	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
246	R	747820	S	S	S	-	-	S	S	S	-	-	-	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	MDR
247	R.G	749614	S	S	R	-	S	S	R	R	R	S	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	MDR
248	B.S	746643	R	R	R	R	R	R	R	R	S	S	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	MDR
249	H.K	736085	R	R	R	-	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	POS	MBL	-	-	XDR
250	S.K	728775	-	R	R	R	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	MDR
251	K.S	253243	R	S	R	R	R	R	R	R	-	-	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	-	**AmpC**	-	-	MDR
252	G.S	729391	R	R	S	R	R	S	S	S	S	S	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	-	**AmpC**	-	-	MDR
253	I.R.G	719285	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	POS	**ESBL,AmpC.MBL**	-	-	XDR
254	R.K	661456	R	R	S	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
255	K.S	291310	R	R	R	R	R	S	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	POS	**ESBL,MBL**	-	-	MDR
256	P.S	694875	S	S	S	S	S	S	S	S	S	S	S	S	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
257	N.Y	688836	R	R	R	R	R	R	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	NEG	NEG	**ESBL**	-	-	MDR
258	S.M	670445	S	S	S	S	S	S	S	S	S	S	S	S	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
259	R.S	691343	R	R	R	-	R	R	R	R	R	R	S	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	MDR
260	S.K	628883	S	S	S	S	S	S	S	S	S	S	S	S	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
261	H.S	672244	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	NEG	**AmpC**	-	-	MDR
262	R.K	647821	R	R	R	R	R	R	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	POS	Y	POS	NEG	**ESBL,AmpC**	-	-	MDR
263	P.S	660139	R	S	R	R	R	R	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	-	-	-	-	MDR
264	R.K	653009	R	R	R	-	R	R	R	R	R	R	S	S	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	MDR
265	V.K	637895	R	R	R	R	R	S	S	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	NEG	NEG	-	-	-	MDR
266	H.S	659150	R	R	R	R	R	R	R	R	R	R	R	R	-	-	R	-	-	-	-	-	-	-	-	Y	NEG	Y	POS	POS	**AmpC,MBL**	-	-	XDR
267	I.S.G	56780	-	-	-	-	-	-	-	-	-	-	-	-	R	R	R	S	S	S	S	S	S	S	S	-	-	-	-	-	-	YES	-	MDR

S.no:	NAME	MRD NO	AGE	SEX	DATE OF RECEIVING SAMPLE	loc	OUTCOME	LAB ID	NUMBER OF DAYS	SAMPLE	HEMOGLOBIN	TLC	CULTURE
268	A.S	643278	61	M	3/1/2019	ICU	DISCHARGED	9293	11	W/S	10.5	50	NG
269	P.K	781253	36	M	13/08/2019	MED	DISCHARGED	4216	13	PUS	10.7	24.3	NG
270	K.S	394047	67	M	20/08/2019	ICU	DISCHARGED	3414	16	PUS	10.4	29	NG
271	A.K	772831	70	M	31/07/2019	ICU	DISCHARGED	1153	57	W/S	4.6	-	NG
272	J.S	775010	51	M	3/8/2019	ICU	DISCHARGED	1105	12	W/S	8.6	29	NG
273	U.B	407244	68	F	8/8/2019	MED	DEATH	5749	6	PUS	7.4	0.36	NG
274	S.C	162101	65	F	10/8/2019	ICU	DAMA	5706	13	W/S	6.6	3.7	NG
275	B.S	691306	62	M	19/03/2019	ICU	DISCHARGED	3800	4	PUS	11.6	3.9	NG
276	N.S	803042	59	M	27/09/2019	ICU	DISCHARGED	4027	35	W/S	9.8	10.1	NG
277	R.K	810501	41	M	29/09/2019	ICU	DISCHARGED	4602	19	PUS	8.1	16.2	NG
278	V.G	245315	66	M	19/02/2019	ICU	DAMA	3682	18	PUS	10.5	50	NG
279	S.S	835645	34	M	31/10/2019	MED	DISCHARGED	4535	10	TISSUE	11.3	16.6	NG
280	S.K	824579	25	F	15/10/2019	ICU	DISCHARGED	8585	21	PUS	10.8	-	NG
281	A.K	153605	63	F	6/2/2019	MED	DISCHARGED	9735	17	W/S	8.6	2.8	NG
282	G.S	667912	81	F	18/02/2019	ICU	DISCHARGED	6457	17	W/S	10.4	29	NG
283	B.S	691306	62	M	19/03/2019	ICU	DISCHARGED	2880	4	W/S	11.6	3.9	NG
284	N.S	803042	59	M	27/09/2019	ICU	DISCHARGED	4842	35	PUS	9.8	10.1	NG
285	R.K	810501	41	M	29/09/2019	ICU	DISCHARGED	8790	19	TISSUE	8.1	16.2	NG
286	V.G	245315	66	M	19/02/2019	ICU	DAMA	4827	18	PUS	10.5	50	NG
287	S.S	835645	34	M	31/10/2019	MED	DISCHARGED	1820	10	W/S	11.3	16.6	NG
288	T.K	645061	48	M	2/1/2019	ICU	DAMA	7518	25	PUS	9.7	15.3	NG
289	P.K	640837	71	F	3/1/2019	ICU	DAMA	9345	21	PUS	11.7	16.6	NG
290	A.S	643278	61	M	3/1/2019	ICU	DISCHARGED	3158	11	PUS	8.1	40	NG
291	A.S	641095	49	M	3/1/2019	ICU	DISCHARGED	5559	31	W/S	6.6	3.7	NG
292	K.C	616784	66	M	4/1/2019	SG	DISCHARGED	7626	69	TISSUE	11.4	10.5	NG
293	U.R	433916	64	F	4/1/2019	MED	DISCHARGED	8994	13	PUS	11.8	14.3	NG
294	P.A	645587	56	M	4/1/2019	ICU	DAMA	3363	8	TISSUE	11.3	3.9	NG
295	P	647334	27	F	5/1/2019	ICU	DISCHARGED	1411	4	W/S	10.6	11.5	NG
296	A.G	647498	68	F	5/1/2019	MED	DISCHARGED	3227	6	PUS	11.9	12.7	NG
297	F.S	396584	66	M	8/1/2019	ICU	DISCHARGED	2843	10	PUS	11.9	23.7	NG
298	R.S.C	642918	48	M	28/12/2018	MED	DISCHARGED	8308	9	TISSUE	11.7	16.4	NG
299	I.S	634692	32	M	29/12/2018	ICU	DAMA	3675	7	W/S	11.5	18.4	NG
300	N.A	576483	63	F	31/12/2018	ICU	DAMA	9968	30	TISSUE	11.6	25.6	NG
301	K.L	646693	76	M	16/01/2019	MED	DISCHARGED	6787	19	PUS	10.5	13.8	NG
302	H.K	652953	49	F	16/01/2019	ICU	DAMA	9207	8	W/S	11.1	26.8	NG
303	J.K	625565	76	M	17/01/2019	SG	DISCHARGED	4570	58	PUS	10.6	14.6	NG
304	S.B	743513	64	F	9/6/2019	ICU	DISCHARGED	6897	18	W/S	9.3	2.8	NG
305	B.K	194650	69	F	9/1/2019	ICU	DISCHARGED	1124	12	TISSUE	11.1	20.9	NG
306	D.S	646345	58	M	9/1/2019	ICU	DISCHARGED	3063	59	W/S	18.5	10.6	NG
307	T.K	647911	48	M	10/1/2019	MED	DISCHARGED	9704	16	PUS	10.3	25.4	NG
308	A.A	651112	34	F	12/1/2019	ICU	DISCHARGED	6107	26	TISSUE	9.8	28.3	NG
309	M.D.J	650570	91	M	12/1/2019	MED	DISCHARGED	4386	4	W/S	9.9	32.3	NG
310	M.K	645791	31	F	12/1/2019	ICU	DISCHARGED	4904	15	W/S	9.5	11.6	NG
311	P.K	652930	59	F	12/1/2019	ICU	DAMA	7262	7	TISSUE	7.6	5.3	NG
312	J.S	651074	59	M	13/01/2019	ICU	DEATH	3247	16	PUS	10.8	-	NG
313	G.R	642455	43	M	13/01/2019	MED	DISCHARGED	5243	1	W/S	10	3.07	NG
314	D.S	651763	73	M	14/01/2019	MED	DISCHARGED	9118	21	W/S	6.6	3.7	NG
315	H.S	149811	33	M	6/3/2019	ICU	DAMA	8577	11	PUS	10.7	15.2	NG
316	A.S	672722	60	M	6/3/2019	MED	DISCHARGED	2587	24	PUS	11.6	3.9	NG
317	R.L	684026	77	M	7/3/2019	SG	DISCHARGED	3960	9	W/S	9.8	10.1	NG
318	G.L	678608	61	M	7/3/2019	MED	DISCHARGED	2878	12	PUS	11.9	27.5	NG
319	P.S	670183	51	M	7/3/2019	ICU	DEATH	8705	25	W/S	8.1	16.2	NG
320	I.S	661769	42	M	8/3/2019	MED	DISCHARGED	6196	11	TISSUE	10.5	50	NG
321	IND	663119	66	M	13/02/2019	MED	DISCHARGED	2739	12	PUS	9.3	12.1	NG
322	B.K	670999	56	M	14/02/2019	ICU	DISCHARGED	3976	8	TISSUE	11.3	0.3	NG
323	J.K	664534	66	F	14/02/2019	ICU	DISCHARGED	3087	17	TISSUE	10.6	11.5	NG
324	B.S	666871	78	M	15/02/2019	ICU	DISCHARGED	2400	19	PUS	5.2	-	NG
325	A.V	672229	46	F	16/02/2019	MED	DISCHARGED	6062	6	PUS	11.9	23.7	NG
326	N.K	370934	71	F	16/02/2019	ICU	DISCHARGED	2223	57	TISSUE	9.6	11.5	NG
327	P	384419	49	F	14/01/2019	ICU	DEATH	7805	18	PUS	11.6	13.1	NG
328	S.S	649605	30	M	15/01/2019	ICU	DISCHARGED	1948	19	PUS	17.4	23.6	NG
329	N.C	642225	27	M	15/01/2019	ICU	DISCHARGED	1787	46	PUS	11.7	15.3	NG
330	R.K	646660	67	M	8/1/2019	ICU	DISCHARGED	2508	48	W/S	9.5	20.6	NG
331	K.S	314550	54	M	8/1/2019	ICU	DAMA	2864	11	TISSUE	-	10.8	NG
332	A.S	680242	61	M	5/3/2019	ICU	DISCHARGED	8475	6	TISSUE	11.2	30	NG
333	V.P.T	798	74	M	6/3/2019	MED	DISCHARGED	5966	5	TISSUE	8.6	2.8	NG
334	J.S	676028	76	M	6/3/2019	MED	DAMA	6391	13	W/S	10.4	29	NG
335	R.S	682997	61	M	6/3/2019	ICU	DISCHARGED	1507	8	TISSUE	9.7	10.6	NG
336	S.R	654888	61	F	20/01/2019	ICU	DISCHARGED	7746	8	W/S	10.6	10.4	NG
337	A.R.S	645485	74	F	20/01/2019	ICU	DISCHARGED	7220	10	PUS	10.8	-	NG
338	M.L	656783	59	M	21/01/2019	ICU	DISCHARGED	2609	7	TISSUE	10.2	11.3	NG
339	T.S	655542	43	M	21/01/2019	ICU	DEATH	1303	7	PUS	7.6	18.8	NG
340	R.K	155493	62	F	23/01/2019	ICU	DISCHARGED	8738	16	W/S	11.4	13.7	NG
341	S.S	657485	61	M	23/01/2019	ICU	DAMA	6210	9	W/S	11.5	2.6	NG
342	T.S	381687	36	M	1/24/2019	ICU	DEATH	4761	6	PUS	11.4	1.4	NG
343	M.K	658003	61	F	1/25/2019	ICU	DISCHARGED	8869	20	W/S	9.2	11.3	NG
344	D.S	581248	53	M	8/3/2019	ICU	DISCHARGED	7140	5	PUS	11.3	16.6	NG
345	R.K.G	261468	88	M	8/3/2019	ICU	DISCHARGED	8996	4	PUS	11.7	16.4	NG
346	K.J	667927	55	F	10/3/2019	MED	DISCHARGED	1019	26	PUS	11.5	18.4	NG
347	S.J	469447	81	M	10/3/2019	ICU	DISCHARGED	4869	10	PUS	11.6	25.6	NG
348	A.S	685093	63	M	11/3/2019	ICU	DISCHARGED	8500	16	W/S	9.7	15.3	NG
349	J.M	90522	67	M	12/3/2019	SG	DISCHARGED	6951	15	PUS	11.7	16.6	NG
350	K.C	655493	83	M	1/25/2019	ICU	DISCHARGED	3063	19	W/S	11.6	51	NG

S.no:	NAME	MRD NO	AGE	SEX	DATE OF RECEIVING SAMPLE	loc	OUTCOME	LAB ID	NUMBER OF DAYS	SAMPLE	HEMOGLOBIN	TLC	CULTURE
351	J.S	659909	61	M	1/27/2019	ICU	DISCHARGED	6036	2	PUS	10.2	21	NG
352	J.S	52221	68	M	1/27/2019	ICU	DISCHARGED	8441	6	W/S	11.3	10.9	NG
353	P.N	270623	62	F	1/27/2019	ICU	DISCHARGED	4355	16	W/S	10.6	10.6	NG
354	A.S	658639	48	M	1/28/2019	ICU	DISCHARGED	5860	8	PUS	11.6	10.3	NG
355	B.K	643988	71	M	1/29/2019	ICU	DISCHARGED	3216	43	PUS	9.5	19.1	NG
356	S.K.G	669524	68	M	11/2/2019	ICU	DISCHARGED	2654	10	W/S	10.7	3	NG
357	S.S	660021	21	M	12/2/2019	ICU	DISCHARGED	3242	48	PUS	17.4	13.8	NG
358	S.B	667402	63	F	12/2/2019	MED	DEATH	8762	6	W/S	11.5	10.4	NG
359	K.K	666874	46	M	13/02/2019	SG	DISCHARGED	7067	15	PUS	5.6	11.6	NG
360	R.K	406663	52	M	13/02/2019	ICU	DISCHARGED	8586	7	W/S	7.9	12.1	NG
361	D.S	665711	58	M	13/02/2019	SG	DISCHARGED	1126	9	W/S	10.2	-	NG
362	B.K	661801	66	F	1/30/2019	ICU	DISCHARGED	1718	16	W/S	9	-	NG
363	S.K.G	660122	53	M	1/30/2019	ICU	DAMA	9722	7	W/S	8.5	-	NG
364	P.K	496049	68	M	7/2/2019	ICU	DAMA	4930	15	W/S	13	13.4	NG
365	M.L	661810	73	M	8/2/2019	ICU	DEATH	8338	11	PUS	12.5	30.9	NG
366	U.S	180016	75	M	9/2/2019	ONCOLOGY	DISCHARGED	9309	6	TISSUE	10.6	-	NG
367	H.S	667378	54	M	9/2/2019	MED	DISCHARGED	5799	22	W/S	11.6	24.2	NG
368	A.M	664539	59	M	9/2/2019	MED	DISCHARGED	4328	69	PUS	11.8	3.2	NG
369	R.R.S	667714	77	F	10/2/2019	MED	DISCHARGED	9512	4	PUS	7.6	10.2	NG
370	R.N	672797	76	F	17/02/2019	ICU	DISCHARGED	1891	14	PUS	10.5	11.2	NG
371	G.S	667912	81	F	18/02/2019	ICU	DISCHARGED	8229	17	PUS	11.5	11.6	NG
372	P.K	670300	64	F	18/02/2019	ICU	DISCHARGED	1021	12	PUS	10.6	10.4	NG
373	N.K	654331	60	M	18/02/2019	ICU	DEATH	1693	4	W/S	10.8	-	NG
374	M.S	663202	70	M	10/2/2019	SG	DISCHARGED	1637	22	PUS	11.5	10.8	NG
375	M.K	656791	81	F	10/2/2019	MED	DISCHARGED	1979	26	W/S	8.4	10.7	NG
376	S.G	658253	53	M	11/2/2019	MED	DISCHARGED	4566	28	PUS	10.9	11.7	NG
377	P.C.M	631927	66	M	11/2/2019	MED	DISCHARGED	1153	13	TISSUE	8.4	10.8	NG
378	T.P	20952	49	F	11/2/2019	MED	DAMA	9527	15	PUS	10	14.9	NG
379	V.K	669502	44	M	11/2/2019	ICU	DISCHARGED	4696	3	PUS	7.9	3.4	NG
380	B.S	691306	62	M	19/03/2019	MED	DISCHARGED	9028	4	W/S	11.8	14.3	NG
381	R.G	660544	51	F	19/03/2019	MED	DISCHARGED	4128	9	PUS	11.3	3.9	NG
382	G.S	688868	25	M	19/03/2019	ICU	DISCHARGED	4290	22	PUS	10.6	11.5	NG
383	SA.K	693114	81	F	23/03/2019	ICU	DAMA	6921	22	W/S	11.9	12.7	NG
384	R.R.D	674907	56	F	27/02/2019	MED	DISCHARGED	7833	30	W/S	9.3	2.8	NG
385	S.C.P.S	677257	74	M	28/02/2019	ICU	DISCHARGED	9030	7	PUS	10.9	12.1	NG
386	M.S	675099	66	M	28/02/2019	MED	DAMA	3013	15	PUS	10.1	14.2	NG
387	C.K	667329	61	F	17/02/2019	MED	DISCHARGED	6931	1	W/S	9.5	11.6	NG
388	P.S	678742	71	M	12/3/2019	ICU	DISCHARGED	6353	18	PUS	10.7	24.3	NG
389	K.K	643626	51	F	12/3/2019	ICU	DISCHARGED	2472	74	PUS	8.1	40	NG
390	B.K	685081	53	F	12/3/2019	ICU	DISCHARGED	3963	23	PUS	6.6	3.7	NG
391	B.S	687456	53	M	15/03/2019	ICU	DISCHARGED	5867	31	W/S	11.4	10.5	NG
392	G.K	200476	79	F	19/02/2019	MED	DISCHARGED	9124	5	W/S	12.2	11	NG
393	V.G	245315	66	M	19/02/2019	ICU	DAMA	1415	18	W/S	10.2	11.3	NG
394	R.C	667356	47	F	19/02/2019	MED	DISCHARGED	6014	28	TISSUE	7.6	18.8	NG
395	A.S	672785	68	M	19/02/2019	ICU	DISCHARGED	3841	11	PUS	11.4	13.7	NG
396	R.K	664478	78	M	21/02/2019	ICU	DISCHARGED	6102	25	PUS	11.5	2.6	NG
397	B.O	688706	73	F	24/03/2019	MED	DISCHARGED	3513	18	PUS	11.9	23.7	NG
398	K.K	679571	27	F	25/03/2019	ICU	DISCHARGED	2404	14	W/S	9.6	11.5	NG
399	S.S	686747	76	F	27/03/2019	MED	DISCHARGED	5094	23	PUS	9.5	20.6	NG
400	G.R	692883	63	F	28/03/2019	ICU	DEATH	6061	14	TISSUE	-	10.8	NG
401	REE	676489	46	F	26/02/2019	MED	DISCHARGED	6815	3	TISSUE	11.6	51	NG
402	M.K	675781	66	F	26/02/2019	ICU	DISCHARGED	7407	21	W/S	11.9	-	NG
403	O.P.B	594098	78	M	26/02/2019	ICU	DAMA	4966	16	TISSUE	13.5	2.4	NG
404	S.D	677230	45	F	27/02/2019	MED	DISCHARGED	1388	8	PUS	88	12.4	NG
405	B.S	694029	61	M	28/03/2019	ICU	DISCHARGED	3121	27	W/S	11.4	26.1	NG
406	G.S	675719	59	M	28/03/2019	ICU	DISCHARGED	9990	96	PUS	11.1	20.9	NG
407	V.J	697358	20	M	29/03/2019	ICU	DISCHARGED	1408	9	TISSUE	18.5	10.6	NG
408	SO.S	694007	55	M	29/03/2019	ICU	DAMA	3698	21	TISSUE	11.2	30	NG
409	J.S	683734	27	M	29/03/2019	ICU	DISCHARGED	7784	27	PUS	9.3	12.1	NG
410	N	697337	24	F	31/03/2019	ICU	DEATH	4738	13	W/S	11.3	0.3	NG
411	A.S	689305	33	M	1/4/2019	SG	DISCHARGED	6572	20	PUS	11.9	23.7	NG
412	A.G	695618	22	M	1/4/2019	MED	DISCHARGED	9476	11	TISSUE	9.6	11.5	NG
413	S.K	701211	90	M	3/4/2019	ICU	DEATH	4154	8	TISSUE	9.5	11.6	NG
414	B.R	496364	40	F	3/4/2019	ICU	DISCHARGED	5969	37	W/S	10.5	11.2	NG
415	C.K	697986	43	F	3/4/2019	ICU	DISCHARGED	4259	7	PUS	11.5	11.6	NG
416	A.P	698019	29	M	4/4/2019	ICU	DISCHARGED	5593	8	TISSUE	10.6	10.4	NG
417	B.S	677295	41	M	2/3/2019	ICU	DISCHARGED	7547	15	W/S	10.3	13.2	NG
418	R.S	653630	71	M	2/3/2019	ICU	DAMA	3963	15	W/S	11.1	14.9	NG
419	PAR	678781	61	F	3/3/2019	ICU	DEATH	2570	11	W/S	12.2	50	NG
420	RUC	681518	33	F	3/3/2019	MED	DISCHARGED	5698	2	W/S	15.2	11.6	NG
421	K.S	680032	63	M	4/3/2019	MED	DISCHARGED	5358	6	W/S	12.8	30.5	NG
422	I.S	134174	49	M	1/29/2019	ICU	DISCHARGED	1091	16	TISSUE	9.4	-	NG
423	G.S	634097	29	M	1/29/2019	MED	DISCHARGED	2069	12	W/S	10.2	20.9	NG
424	R.K	675720	48	M	21/02/2019	ICU	DISCHARGED	5304	8	PUS	12.3	-	NG
425	A.L.G	579941	77	M	23/02/2019	ICU	DISCHARGED	1250	19	W/S	11.4	1.4	NG
426	R.M	677017	58	M	24/02/2019	ICU	DISCHARGED	1332	10	PUS	9.2	11.3	NG
427	N.K	677250	38	M	24/02/2019	ICU	DISCHARGED	5399	20	W/S	7.6	5.3	NG
428	S.K.B	675111	82	M	31/03/2019	MED	DISCHARGED	4241	14	PUS	10.6	11.5	NG
429	S.S	670370	55	M	31/03/2019	MED	DISCHARGED	5928	8	W/S	5.2	-	NG
430	S.R	677302	74	M	1/3/2019	ICU	DISCHARGED	8620	17	W/S	5.4	10.3	NG
431	S.M	672925	39	M	1/3/2019	ICU	DAMA	7291	64	PUS	11.9	-	NG
432	N.K	56946	69	F	17/03/2019	MED	DISCHARGED	8282	16	PUS	9.5	12.6	NG
433	I.C.O	706025	46	M	11/4/2019	ICU	DAMA	8240	7	W/S	11.4	1.4	NG

S.no:	NAME	MRD NO	AGE	SEX	DATE OF RECEIVING SAMPLE	loc	OUTCOME	LAB ID	NUMBER OF DAYS	SAMPLE	HEMOGLOBIN	TLC	CULTURE
434	P.K	689615	56	M	11/4/2019	ICU	DISCHARGED	2453	10	TISSUE	9.2	11.3	NG
435	S.B	704220	57	F	12/4/2019	ICU	DISCHARGED	4945	11	W/S	7.6	5.3	NG
436	R.D.B	696524	71	M	12/4/2019	SG	DISCHARGED	9984	41	W/S	11.9	23.7	NG
437	B.S	701104	73	M	5/4/2019	ICU	DEATH	9581	13	PUS	10.8	-	NG
438	R.S	698822	36	M	5/4/2019	ICU	DISCHARGED	8760	6	TISSUE	12.2	11	NG
439	J.K	694884	51	M	5/4/2019	ICU	DISCHARGED	7401	5	PUS	10.2	11.3	NG
440	G.M	699555	46	M	6/4/2019	MED	DAMA	7514	8	PUS	7.6	18.8	NG
441	G.S	700412	49	M	7/4/2019	MED	DISCHARGED	8937	7	W/S	11.4	13.7	NG
442	J.S	705520	62	M	10/4/2019	ICU	DISCHARGED	8586	9	W/S	11.5	2.6	NG
443	A.S	706421	61	M	11/4/2019	ICU	DISCHARGED	8321	15	W/S	12.3	-	NG
444	S.K	707347	67	F	12/4/2019	ICU	DISCHARGED	2163	22	PUS	9.6	11.5	NG
445	G.K	636623	36	M	9/1/2019	SG	DISCHARGED	8718	34	W/S	11.4	26.1	NG
446	H.K	43936	52	F	12/4/2019	ICU	DEATH	5581	26	TISSUE	9.5	11.6	NG
447	M.K	705935	29	F	13/04/2019	ICU	DISCHARGED	8565	9	W/S	10.5	11.2	NG
448	G.K	708586	65	F	15/04/2019	ICU	DISCHARGED	7523	5	W/S	11.5	11.6	NG
449	S.M	670445	52	F	16/04/2019	MED	DISCHARGED	8112	56	TISSUE	10.6	10.4	NG
450	I.K.S	710280	73	M	16/04/2019	MED	DAMA	9336	16	TISSUE	10.8	-	NG
451	P.K.J	711639	69	M	20/04/2019	ICU	DEATH	5287	2	PUS	12.3	-	NG
452	S.K	708604	68	F	20/04/2019	ICU	DISCHARGED	2718	5	PUS	11.4	1.4	NG
453	H.K	668822	65	F	22/04/2019	MED	DISCHARGED	2257	10	PUS	9.2	11.3	NG
454	J.K	709000	53	F	23/04/2019	MED	DAMA	6112	10	W/S	7.6	5.3	NG
455	K.D	689653	66	F	23/04/2019	ICU	DAMA	2485	27	TISSUE	7.8	2.5	NG
456	S.R	709422	38	F	18/04/2019	ICU	DEATH	9361	18	W/S	12.2	11	NG
457	LOV	706636	35	M	18/04/2019	MED	DISCHARGED	9411	12	W/S	10.2	11.3	NG
458	N.S	708560	68	M	18/04/2019	ICU	DISCHARGED	6075	5	W/S	7.6	18.8	NG
459	V.G	614283	70	F	19/04/2019	ICU	DISCHARGED	6985	35	W/S	11.4	13.7	NG
460	H.S	702584	76	M	20/04/2019	MED	DISCHARGED	1311	6	W/S	11.5	2.6	NG
461	A.G	708994	66	F	23/04/2019	ICU	DISCHARGED	7944	28	W/S	11.9	16.2	NG
462	MENU	713351	44	F	23/04/2019	MED	DISCHARGED	1568	24	W/S	9.2	15.6	NG
463	M.P	714544	47	M	24/04/2019	MED	DISCHARGED	8309	8	W/S	8.6	15.2	NG
464	M.K	713201	66	M	25/4/2019	ICU	DEATH	7221	28	PUS	7.5	11.3	NG
465	K.K.M	715528	65	M	25/04/2019	ICU	DEATH	3757	10	TISSUE	6.5	15.2	NG
466	S.S.R	65521	74	M	27/04/2019	ICU	DISCHARGED	7628	21	PUS	7.8	2.5	NG
467	K.K	64148	62	M	27/04/2019	ICU	DISCHARGED	8532	9	W/S	9.5	29	NG
468	V.K	708707	52	M	27/04/2019	SG	DISCHARGED	9455	13	W/S	8.6	2.8	NG
469	R.K.P	712342	73	M	28/04/2019	MED	DAMA	7285	15	W/S	10.4	29	NG
470	K.R	167571	70	F	28/04/2019	ICU	DISCHARGED	3073	23	W/S	9.7	10.6	NG
471	S.R	703902	33	M	28/04/2019	SG	DISCHARGED	6318	23	PUS	10.7	15.2	NG
472	I.S	717634	24	M	28/04/2019	ICU	DISCHARGED	5735	2	W/S	12.4	52	NG
473	P.S	714043	39	M	29/04/2019	ICU	DISCHARGED	4234	38	TISSUE	11.9	27.5	NG
474	P.C	716134	72	M	29/04/2019	ICU	DISCHARGED	7633	18	W/S	11.9	27.5	NG
475	B.S	712970	54	M	29/04/2019	ICU	DAMA	2104	13	PUS	8.1	16.2	NG
476	B.R.S	715269	67	M	30/04/2019	ICU	DEATH	1129	16	PUS	12.6	50	NG
477	A.K	733411	39	M	4/6/2019	ICU	DISCHARGED	5972	25	W/S	11.5	2.6	NG
478	S.S	739758	54	M	5/6/2019	ICU	DISCHARGED	9002	16	TISSUE	12.3	-	NG
479	V.K	70374	69	M	6/6/2019	MED	DISCHARGED	3691	9	PUS	11.4	1.4	NG
480	G.K	743299	56	M	8/6/2019	ICU	DISCHARGED	2835	23	PUS	9.2	11.3	NG
481	S.G	711472	39	M	30/04/2019	ICU	DEATH	6884	21	PUS	8.6	2.8	NG
482	G.K	716167	36	M	30/04/2019	ICU	DAMA	2107	13	W/S	10.4	29	NG
483	H.S	718633	29	M	1/5/2019	MED	DISCHARGED	9291	5	PUS	9.7	10.6	NG
484	T.J.S	720648	86	M	3/5/2019	ICU	DISCHARGED	1761	7	TISSUE	10.7	15.2	NG
485	S.S	113465	87	F	3/5/2019	ICU	DISCHARGED	5411	7	W/S	12.4	52	NG
486	P.K	677254	64	F	3/5/2019	ICU	DISCHARGED	9931	11	TISSUE	9.7	10.6	NG
487	P.D	720751	66	F	3/5/2019	ICU	DISCHARGED	4214	3	TISSUE	10.7	15.2	NG
488	M.K	721369	53	F	4/5/2019	ICU	DISCHARGED	5884	4	W/S	11.6	3.9	NG
489	S.K	717667	71	F	4/5/2019	MED	DISCHARGED	1309	8	W/S	11.6	3.9	NG
490	V.P	463589	79	M	4/5/2019	ICU	DISCHARGED	5973	13	W/S	11.3	16.6	NG
491	S.J	721910	27	F	5/5/2019	ICU	DISCHARGED	3383	6	W/S	11.7	16.4	NG
492	R.K	721429	59	F	5/5/2019	ICU	DISCHARGED	2707	8	PUS	11.5	18.4	NG
493	J.K.	719992	71	F	5/5/2019	ICU	DISCHARGED	7898	17	TISSUE	11.6	25.6	NG
494	T.S	175063	68	M	5/5/2019	ICU	DISCHARGED	6633	10	W/S	9.7	15.3	NG
495	K.J	714009	76	F	6/5/2019	ICU	DISCHARGED	5419	24	PUS	11.7	16.6	NG
496	A.G	705096	51	M	7/5/2019	ICU	DISCHARGED	2462	6	W/S	10.7	24.3	NG
497	S.K	743509	63	F	8/6/2019	ICU	DEATH	1310	3	W/S	7.6	5.3	NG
498	J.K	739139	71	F	8/6/2019	ICU	DISCHARGED	4195	47	TISSUE	11.6	51	NG
499	S.S	721561	60	M	8/6/2019	ICU	DISCHARGED	6183	6	TISSUE	11.9	-	NG
500	R.K.G	21190	65	M	9/6/2019	ICU	DISCHARGED	1229	4	W/S	13.5	2.4	NG
501	N.K	610858	53	M	9/6/2019	MED	DISCHARGED	7125	4	W/S	88	12.4	NG
502	SU.B	744243	45	F	10/6/2019	ICU	DAMA	9778	6	W/S	10.9	12.1	NG
503	S.K	742102	64	M	10/6/2019	ICU	DISCHARGED	7324	5	PUS	10.1	14.2	NG
504	J.S	744131	61	M	10/6/2019	ICU	DISCHARGED	1928	6	PUS	5.4	10.3	NG
505	H.K	744666	53	F	12/6/2019	MED	DISCHARGED	2289	1	PUS	11.9	-	NG
506	A.K	362651	64	M	12/6/2019	ICU	DISCHARGED	3057	6	W/S	10.3	13.2	NG
507	C.S	745076	51	M	13/06/2019	ICU	DISCHARGED	8084	3	PUS	11.1	14.9	NG
508	J.K	431368	90	F	13/06/2019	ICU	DISCHARGED	9201	21	W/S	12.2	50	NG
509	M.P	737241	70	M	13/06/2019	MED	DISCHARGED	2410	3	TISSUE	15.2	11.6	NG
510	P.K	323570	30	F	13/06/2019	ICU	DISCHARGED	9421	24	PUS	12.8	30.5	NG
511	U.K	738501	35	F	2/6/2019	ICU	DISCHARGED	2355	11	TISSUE	10.6	10.4	NG
512	H.K	618200	46	F	2/6/2019	MED	DISCHARGED	7756	28	PUS	10.8	-	NG
513	AK.S	734354	56	M	3/6/2019	ICU	DEATH	2044	7	W/S	12.2	11	NG
514	V.K	563494	62	M	4/6/2019	ICU	DISCHARGED	1697	43	W/S	10.2	11.3	NG
515	M.R	733731	40	F	4/6/2019	MED	DISCHARGED	8291	3	PUS	7.6	18.8	NG
516	K.R	735895	83	F	4/6/2019	ICU	DISCHARGED	9417	27	W/S	11.4	13.7	NG

S.no:	NAME	MRD NO	AGE	SEX	DATE OF RECEIVING SAMPLE	loc	OUTCOME	LAB ID	NUMBER OF DAYS	SAMPLE	HEMOGLOBIN	TLC	CULTURE
517	S.B	747927	56	F	13/06/2019	ICU	DISCHARGED	6638	12	PUS	11.2	30	NG
518	SHI	746608	20	M	14/06/2019	MED	DISCHARGED	6649	8	TISSUE	8.6	2.8	NG
519	K.S	115964	58	M	15/06/2019	ICU	DEATH	7375	8	PUS	10.4	29	NG
520	J.K	745006	76	F	15/06/2019	MED	DISCHARGED	1304	11	W/S	9.7	10.6	NG
521	S.A	744794	64	M	15/06/2019	ICU	DISCHARGED	3531	5	PUS	10.7	15.2	NG
522	K.S	693656	63	M	15/06/2019	MED	DISCHARGED	3277	6	W/S	11.6	3.9	NG
523	G.S	724653	70	M	9/5/2019	SG	DISCHARGED	6905	3	W/S	8.1	40	NG
524	B.S	720749	39	M	10/5/2019	ICU	DISCHARGED	3711	13	W/S	6.6	3.7	NG
525	S.D	721052	63	F	10/5/2019	ICU	DISCHARGED	8225	8	PUS	11.4	10.5	NG
526	S.S	676628	19	M	11/5/2019	ICU	DISCHARGED	1829	18	PUS	9.5	12.6	NG
527	R.S	717728	23	M	12/5/2019	SG	DISCHARGED	6655	30	PUS	11.8	14.3	NG
528	P.R	726946	75	F	12/5/2019	ICU	DAMA	6171	20	PUS	11.3	3.9	NG
529	V.K	740468	35	F	15/06/2019	ICU	DISCHARGED	8477	9	W/S	9.8	10.1	NG
530	K.S	340609	72	F	16/06/2019	MED	DISCHARGED	3630	11	PUS	11.9	27.5	NG
531	H.S	192412	81	M	17/06/2019	MED	DAMA	5399	10	PUS	8.1	16.2	NG
532	K.K	664082	58	F	19/06/2019	MED	DISCHARGED	6266	5	TISSUE	10.5	50	NG
533	B.K	749409	74	F	19/06/2019	MED	DISCHARGED	9428	57	W/S	11.3	16.6	NG
534	V.K.V	747171	43	M	20/06/2019	MED	DISCHARGED	2031	16	PUS	11.7	16.4	NG
535	AISH	749078	23	F	20/06/2019	ICU	DISCHARGED	1478	17	PUS	11.5	18.4	NG
536	H.K	714694	66	F	15/05/2019	ICU	DISCHARGED	6304	35	W/S	10.6	11.5	NG
537	V.K	669345	47	F	16/05/2019	ICU	DAMA	6101	9	PUS	5.2	-	NG
538	R.D.G	496259	73	M	16/05/2019	ICU	DISCHARGED	4300	11	W/S	11.9	23.7	NG
539	B.B	714781	62	M	17/05/2018	ICU	DISCHARGED	8221	24	W/S	9.6	11.5	NG
540	R.K	723946	30	M	13/05/2019	ICU	DISCHARGED	6252	15	PUS	10.6	11.5	NG
541	H.S	729478	27	M	17/05/2019	ICU	DISCHARGED	9545	26	W/S	9.5	11.6	NG
542	R.M	726328	46	F	17/05/2019	ICU	DEATH	3181	10	PUS	10.5	11.2	NG
543	KANU	726947	24	F	17/05/2019	ICU	DISCHARGED	2073	9	W/S	11.5	11.6	NG
544	M.L	717539	52	M	17/05/2019	ICU	DISCHARGED	2933	12	PUS	10.6	10.4	NG
545	D.K	728712	46	F	17/05/2019	ICU	DAMA	3288	12	W/S	10.8	-	NG
546	KD.S	726962	47	M	17/05/2019	MED	DISCHARGED	2381	8	W/S	12.2	11	NG
547	K.S	725292	72	M	18/05/2019	MED	DAMA	6020	12	W/S	10.2	11.3	NG
548	D.J	730769	44	F	18/05/2019	ICU	DISCHARGED	1562	2	PUS	7.6	18.8	NG
549	S.S	730136	83	M	20/05/2019	ICU	DISCHARGED	9369	6	W/S	11.4	13.7	NG
550	M.K	722225	44	F	21/05/2019	ICU	DISCHARGED	2944	18	W/S	11.5	2.6	NG
551	K.G	732304	57	F	21/05/2019	ICU	DISCHARGED	3485	5	PUS	12.3	-	NG
552	H.K	727127	51	F	21/05/2019	ICU	DISCHARGED	4118	10	PUS	11.4	1.4	NG
553	K.D	723546	71	F	23/05/2019	MED	DISCHARGED	2714	35	TISSUE	9.2	11.3	NG
554	J.S	734186	65	M	24/05/2019	ICU	DISCHARGED	7172	11	PUS	7.6	5.3	NG
555	F.S	717785	41	M	24/05/2019	MED	DISCHARGED	5837	4	W/S	11.6	51	NG
556	J.K	733136	76	F	24/05/2019	ICU	DISCHARGED	2477	6	W/S	11.5	10.4	NG
557	S.S	732465	25	M	25/05/2019	ICU	DISCHARGED	3177	17	W/S	5.6	11.6	NG
558	V.D	522194	52	M	25/05/2019	ICU	DISCHARGED	8944	5	PUS	7.9	12.1	NG
559	N.R	737766	58	F	27/05/2019	MED	DEATH	3704	4	PUS	10.2	-	NG
560	L.D	574255	23	F	29/05/2019	MED	DISCHARGED	1410	52	PUS	9.3	12.1	NG
561	G.S	738428	76	M	29/05/2019	MED	DISCHARGED	3997	8	TISSUE	11.3	0.3	NG
562	U.R	738284	63	F	30/05/2019	MED	DISCHARGED	5116	5	W/S	10.6	11.5	NG
563	J.S	735122	53	M	31/05/2019	MED	DISCHARGED	4146	17	W/S	5.2	-	NG
564	CJ.K	738823	56	F	31/05/2019	ICU	DAMA	5836	6	PUS	11.9	23.7	NG
565	C.K	336826	83	F	1/6/2019	ICU	DISCHARGED	6982	21	PUS	9.6	11.5	NG
566	P.R	739124	73	F	1/6/2019	ICU	DEATH	7883	11	PUS	9.5	11.6	NG
567	P.K	264867	60	M	23/06/2019	MED	DISCHARGED	1620	14	TISSUE	11.4	10.5	NG
568	M.D	221610	67	F	24/06/2019	MED	DISCHARGED	4277	9	TISSUE	9.5	12.6	NG
569	M.S	751916	51	M	24/06/2019	ICU	DISCHARGED	3713	2	W/S	11.8	14.3	NG
570	S.L	753498	41	M	24/06/2019	ICU	DISCHARGED	9563	12	W/S	11.3	3.9	NG
571	S.K	752781	46	M	25/06/2019	ICU	DISCHARGED	3181	22	PUS	10.6	11.5	NG
572	N.C	747345	67	M	21/06/2019	MED	DISCHARGED	8838	14	W/S	11.6	25.6	NG
573	S.K	750085	61	F	21/06/2019	ICU	DAMA	4480	6	TISSUE	9.7	15.3	NG
574	L.B.P	752575	56	M	22/06/2019	ICU	DISCHARGED	8161	17	W/S	11.7	16.6	NG
575	M.D.B	746301	60	F	22/06/2019	ICU	DISCHARGED	3351	14	W/S	10.7	24.3	NG
576	DHAR	753473	61	M	22/06/2019	MED	DAMA	9522	23	TISSUE	8.1	40	NG
577	SHI	749640	71	F	23/06/2019	ICU	DISCHARGED	5882	12	PUS	6.6	3.7	NG
578	B.R	739374	69	M	25/06/2019	ICU	DISCHARGED	4610	20	PUS	11.9	12.7	NG
579	V.K	752009	51	M	26/06/2019	ICU	DISCHARGED	2447	6	TISSUE	11.9	23.7	NG
580	S.B	754830	69	F	26/06/2019	ICU	DISCHARGED	1728	28	PUS	9.6	11.5	NG
581	S.A	555544	80	M	26/06/2019	ICU	DISCHARGED	3680	45	W/S	9.5	20.6	NG
582	G.K	749669	83	F	26/06/2019	ICU	DISCHARGED	7847	12	PUS	-	10.8	NG
583	S.S	746675	21	M	26/06/2019	ICU	DISCHARGED	9035	21	W/S	11.4	26.1	NG
584	M.G	698022	52	M	27/06/2019	MED	DISCHARGED	7920	5	PUS	11.1	20.9	NG
585	K.K	376041	41	M	27/06/2019	ICU	DISCHARGED	2941	13	W/S	18.5	10.6	NG
586	A.K	604785	63	F	27/06/2019	ICU	DISCHARGED	1519	2	TISSUE	11.2	30	NG
587	Y.K	733888	44	M	27/06/2019	ICU	DISCHARGED	8276	13	PUS	9.3	12.1	NG
588	G.B	631290	60	M	28/06/2019	MED	DISCHARGED	8737	4	TISSUE	11.3	0.3	NG
589	G.S	714651	45	M	29/06/2019	MED	DISCHARGED	6129	9	W/S	9.6	11.5	NG
590	S.P	564919	24	M	29/06/2019	ICU	DISCHARGED	3954	18	PUS	9.5	11.6	NG
591	M.M.S	752712	75	M	29/06/2019	ICU	DISCHARGED	6353	6	PUS	10.5	11.2	NG
592	I.K	68520	78	F	30/6/2019	MED	DAMA	9343	10	TISSUE	11.5	11.6	NG
593	R.L	209162	78	M	30/6/2019	MED	DISCHARGED	7622	14	W/S	10.6	10.4	NG
594	M.S	82106	74	M	30/06/2019	ICU	DISCHARGED	7977	2	PUS	10.8	-	NG
595	T.S	753599	87	M	1/7/2019	ICU	DEATH	6670	19	W/S	12.2	11	NG
596	POO	759015	53	F	4/7/2019	ICU	DISCHARGED	5600	6	TISSUE	7.6	5.3	NG
597	U.R	754972	63	F	6/7/2019	MED	DISCHARGED	1947	30	PUS	10.6	10.4	NG
598	G.S	749204	33	M	10/7/2019	ICU	DISCHARGED	8734	7	PUS	11.4	1.4	NG
599	V.J	755012	51	M	10/7/2019	ICU	DISCHARGED	2953	24	PUS	9.2	11.3	NG

S.no:	NAME	MRD NO	AGE	SEX	DATE OF RECEIVING SAMPLE	loc	OUTCOME	LAB ID	NUMBER OF DAYS	SAMPLE	HEMOGLOBIN	TLC	CULTURE
600	G.K	274575	74	F	10/7/2019	ICU	DAMA	3965	16	PUS	7.6	5.3	NG
601	A.T	757981	20	M	11/7/2019	ICU	DISCHARGED	6007	8	W/S	7.8	2.5	NG
602	SAN	743668	47	F	7/7/2019	MED	DISCHARGED	2400	6	TISSUE	12.2	11	NG
603	S.K	762515	56	F	8/7/2019	ICU	DEATH	1935	13	PUS	10.2	11.3	NG
604	A.S	762383	63	M	8/7/2019	ICU	DISCHARGED	1361	12	W/S	7.6	18.8	NG
605	R.D.C	685945	83	M	8/7/2019	ICU	DISCHARGED	1302	3	W/S	11.4	13.7	NG
606	S.G	128911	74	M	9/7/2019	ICU	DISCHARGED	7424	29	W/S	11.5	2.6	NG
607	G.A	763558	30	M	9/7/2019	ICU	DISCHARGED	9903	13	PUS	12.3	-	NG
608	MEEN	749659	27	F	1/7/2019	ICU	DISCHARGED	1197	14	TISSUE	10.2	11.3	NG
609	S.S	581343	59	M	2/7/2019	ICU	DISCHARGED	5977	18	W/S	7.6	18.8	NG
610	M.S	758900	33	M	4/7/2019	ICU	DISCHARGED	9671	3	PUS	11.4	1.4	NG
611	H.L	761023	63	M	4/7/2019	ICU	DISCHARGED	9450	14	W/S	9.2	11.3	NG
612	R.L	267166	69	M	14/07/2019	ICU	DISCHARGED	8076	25	W/S	9.7	10.6	NG
613	W.M	686761	71	M	14/07/2019	ICU	DISCHARGED	2549	18	TISSUE	10.7	15.2	NG
614	J.S.S	754560	85	M	14/07/2019	MED	DISCHARGED	1490	7	PUS	12.4	52	NG
615	S.S	765542	39	M	15/07/2019	ICU	DAMA	4031	8	PUS	11.9	27.5	NG
616	A.S	765946	71	M	15/07/2019	ICU	DISCHARGED	9782	12	W/S	11.9	27.5	NG
617	A.K	489961	44	F	15/07/2019	ICU	DAMA	5308	24	W/S	8.1	16.2	NG
618	G.B.M	762644	73	M	11/7/2019	ICU	DISCHARGED	8712	11	PUS	8.6	15.2	NG
619	S.J	762733	31	F	14/07/2019	MED	DISCHARGED	3132	9	W/S	10.4	29	NG
620	S.D	763691	49	F	15/07/2019	ICU	DISCHARGED	9693	26	PUS	12.6	50	NG
621	O.D.S	764230	75	M	16/07/2019	ICU	DISCHARGED	6718	10	W/S	8.6	2.8	NG
622	A.K	762678	28	F	16/07/2019	ICU	DISCHARGED	1648	22	W/S	10.4	29	NG
623	B.S	766719	78	M	19/07/2019	MED	DISCHARGED	6066	16	W/S	9.7	10.6	NG
624	J.K	770760	39	F	19/07/2019	MED	DAMA	9564	7	TISSUE	10.7	15.2	NG
625	S.M.S	535544	43	M	20/07/2019	MED	DISCHARGED	8331	27	W/S	11.6	3.9	NG
626	S.D	256823	69	F	21/07/2019	MED	DISCHARGED	6061	6	TISSUE	9.8	10.1	NG
627	K.K	741218	63	M	22/07/2019	MED	DISCHARGED	6866	10	TISSUE	11.9	27.5	NG
628	J.S	771685	46	M	22/07/2019	ICU	DAMA	1445	12	W/S	8.1	16.2	NG
629	J.K	768115	77	F	23/07/2019	ICU	DISCHARGED	4399	11	W/S	10.5	50	NG
630	VIK	696968	36	M	24/07/2019	MED	DISCHARGED	7894	11	PUS	11.3	16.6	NG
631	G.K	768796	78	F	25/07/2019	ICU	DISCHARGED	2982	17	TISSUE	11.7	16.4	NG
632	D.K	769417	58	F	25/07/2019	ICU	DEATH	3756	15	TISSUE	11.5	18.4	NG
633	R.C	770249	29	M	26/07/2019	MED	DISCHARGED	8287	19	W/S	11.6	25.6	NG
634	T.S	770991	30	M	27/07/2019	SG	DAMA	3743	16	PUS	9.7	15.3	NG
635	C.S	771000	74	M	27/07/2019	ICU	DISCHARGED	5880	13	PUS	11.7	16.6	NG
636	J.K	771070	60	F	27/07/2019	ICU	DISCHARGED	9696	13	TISSUE	10.7	24.3	NG
637	V.B	716149	38	M	1/6/2019	MED	DISCHARGED	9324	22	W/S	10.5	11.2	NG
638	D.S	734398	33	M	1/6/2019	ICU	DISCHARGED	9588	25	PUS	11.5	11.6	NG
639	B.R	753453	76	F	6/7/2019	ICU	DISCHARGED	2369	17	PUS	10.8	-	NG
640	J.K	71215	74	M	11/7/2019	MED	DISCHARGED	6027	17	W/S	11.9	16.2	NG
641	S.A	761822	64	F	11/7/2019	ICU	DISCHARGED	3414	13	W/S	9.2	15.6	NG
642	R.S	409606	76	M	28/07/2019	MED	DISCHARGED	2819	11	TISSUE	8.1	40	NG
643	S.S	771873	47	M	29/07/2019	ICU	DISCHARGED	2079	11	W/S	6.6	3.7	NG
644	A.K	776717	58	M	29/07/2019	MED	DISCHARGED	9378	27	PUS	5.4	10.3	NG
645	B.D	773647	90	M	30/07/2019	ICU	DAMA	8158	9	TISSUE	11.9	-	NG
646	R.K	489398	62	M	30/07/2019	MED	DISCHARGED	4958	27	W/S	10.3	13.2	NG
647	A.K	772831	70	M	31/07/2019	ICU	DISCHARGED	1571	9	TISSUE	3.8	19.5	NG
648	R.K	776625	67	M	31/07/2019	MED	DEATH	5697	46	PUS	4.6	-	NG
649	GUR	772839	25	F	31/07/2019	SG	DISCHARGED	6140	2	PUS	8.1	-	NG
650	B.S	777340	65	M	31/07/2019	ICU	DISCHARGED	1146	4	PUS	8.2	12.5	NG
651	H.K	778278	60	F	1/8/2019	ICU	DISCHARGED	4928	24	PUS	8.7	19.4	NG
652	K.G	756020	83	M	1/8/2019	ICU	DAMA	2792	13	TISSUE	9	11.6	NG
653	J.S	430749	67	M	1/8/2019	MED	DISCHARGED	2920	6	W/S	10.7	10.2	NG
654	R.S	771644	53	M	1/8/2019	MED	DISCHARGED	2664	6	W/S	11.2	12.6	NG
655	J.S	775010	51	M	3/8/2019	ICU	DISCHARGED	9782	18	PUS	10.2	12.4	NG
656	Y.P	778288	66	M	4/8/2019	ICU	DISCHARGED	5452	28	W/S	8.6	29	NG
657	U.B	407244	68	F	8/8/2019	ONCOLOGY	DEATH	4189	6	PUS	11.2	25.1	NG
658	M.K	780420	61	F	9/8/2019	ICU	DISCHARGED	4124	12	PUS	11.6	25.6	NG
659	B.R	781844	73	M	9/8/2019	ICU	DISCHARGED	6845	7	W/S	9.7	15.3	NG
660	N.S	782600	51	M	12/8/2019	ICU	DISCHARGED	9820	31	PUS	8.1	16.2	NG
661	S.K	778876	34	F	13/08/2019	ICU	DISCHARGED	3086	13	TISSUE	11.5	18.4	NG
662	SHAL	778360	24	F	13/08/2019	ICU	DISCHARGED	3663	5	W/S	11.6	25.6	NG
663	T.J	784973	84	F	13/08/2019	ICU	DISCHARGED	5918	5	TISSUE	9.7	15.3	NG
664	P.K	781253	36	M	13/08/2019	MED	DISCHARGED	5989	16	TISSUE	11.7	16.6	NG
665	K.J	770181	41	M	14/08/2019	ICU	DISCHARGED	2428	50	W/S	10.7	24.3	NG
666	G.S	786936	66	M	14/08/2019	ICU	DEATH	3330	14	PUS	8.1	40	NG
667	H.S	781091	38	M	15/08/2019	ICU	DISCHARGED	2098	12	TISSUE	6.6	3.7	NG
668	P.R	786995	56	F	15/08/2019	SG	DISCHARGED	7013	7	TISSUE	5.4	10.3	NG
669	A.K	25060	45	F	9/8/2019	ICU	DISCHARGED	6035	9	PUS	11.7	16.6	NG
670	M.S	783874	43	M	10/8/2019	ICU	DAMA	6099	6	TISSUE	10.7	24.3	NG
671	S.C	162101	65	F	10/8/2019	ICU	DAMA	7439	7	TISSUE	8.1	40	NG
672	M.K	781159	61	F	11/8/2019	ICU	DISCHARGED	3094	31	W/S	10.6	11.5	NG
673	M.S	784273	101	M	12/8/2019	MED	DAMA	3947	35	PUS	11.9	27.5	NG
674	M.L	789289	66	M	19/08/2019	MED	DAMA	6275	15	PUS	9.7	15.3	NG
675	B.K.B	770578	55	F	19/08/2019	ONCOLOGY	DISCHARGED	5205	11	TISSUE	5.2	-	NG
676	S.P	790143	51	F	20/08/2019	MED	DISCHARGED	4845	6	W/S	11.3	5.2	NG
677	K.S	394047	67	M	20/08/2019	ICU	DISCHARGED	6783	2	W/S	8.6	2.8	NG
678	A.S	788501	48	M	21/08/2019	ICU	DISCHARGED	9538	31	W/S	10.4	29	NG
679	S.N	788327	48	M	21/08/2019	ICU	DISCHARGED	3655	1	TISSUE	9.7	10.6	NG
680	H.S	786231	19	M	15/08/2019	ICU	DAMA	8071	31	PUS	10.9	2.6	NG
681	S.R	786137	37	F	16/08/2019	ICU	DISCHARGED	4471	13	W/S	9.8	10.1	NG
682	UPA	479764	34	F	19/08/2019	ICU	DISCHARGED	7982	4	TISSUE	11.6	25.6	NG

S.no:	NAME	MRD NO	AGE	SEX	DATE OF RECEIVING SAMPLE	loc	OUTCOME	LAB ID	NUMBER OF DAYS	SAMPLE	HEMOGLOBIN	TLC	CULTURE
683	SIM	734436	20	M	21/08/2019	ICU	DISCHARGED	2650	16	W/S	10.7	15.2	NG
684	K.S	791824	28	M	21/08/2019	ICU	DISCHARGED	9270	21	W/S	11.6	3.9	NG
685	N.P.S	788969	37	M	22/08/2019	ICU	DISCHARGED	3490	9	W/S	9.8	10.1	NG
686	S.S	789359	53	F	22/08/2019	MED	DISCHARGED	8515	30	W/S	11.9	27.5	NG
687	G.S	176679	78	M	23/08/2019	ICU	DISCHARGED	9115	10	W/S	8.1	16.2	NG
688	K.K	788145	65	F	23/08/2019	MED	DISCHARGED	6042	9	W/S	10.5	50	NG
689	S.A	374241	62	M	23/08/2019	MED	DAMA	4699	23	PUS	11.3	16.6	NG
690	G.L	782276	56	M	24/08/2019	ICU	DISCHARGED	2097	24	W/S	9.7	15.3	NG
691	B.S.B	667954	85	M	25/08/2019	ICU	DISCHARGED	1231	11	PUS	11.7	16.6	NG
692	B.S	789054	61	M	25/08/2019	MED	DISCHARGED	8108	15	PUS	10.7	24.3	NG
693	H.L	700817	64	M	25/08/2019	MED	DISCHARGED	9792	14	W/S	8.1	40	NG
694	N.S	790594	41	M	25/08/2019	ICU	DISCHARGED	2518	13	PUS	6.6	3.7	NG
695	G.K	791637	63	F	26/08/2019	MED	DISCHARGED	1008	15	W/S	9.6	11.5	NG
696	V.K	789818	41	M	26/08/2019	MED	DISCHARGED	4949	14	PUS	9.5	20.6	NG
697	P.K	796074	59	M	28/08/2019	ICU	DISCHARGED	4164	26	PUS	-	10.8	NG
698	R.S	722197	59	F	29/08/2019	MED	DISCHARGED	6353	3	W/S	10.4	29	NG
699	R.S	792614	51	M	28/08/2019	MED	DISCHARGED	8007	12	PUS	9.7	10.6	NG
700	S.D	794326	61	F	30/08/2019	ICU	DAMA	1323	11	W/S	10.5	11.2	NG
701	M.L	799465	79	M	30/08/2019	ICU	DISCHARGED	3773	24	W/S	11.5	11.6	NG
702	R.K	614255	73	F	31/08/2019	ONCOLOGY	DISCHARGED	3633	3	W/S	10.6	10.4	NG
703	B.S	796952	36	M	31/08/2019	ICU	DISCHARGED	5808	13	PUS	10.8	-	NG
704	S.S	422332	60	M	31/08/2019	ONCOLOGY	DISCHARGED	4154	18	PUS	12.2	11	NG
705	N.S	800391	39	M	2/9/2019	MED	DISCHARGED	9640	8	W/S	8.1	16.2	NG
706	C.L	800221	66	M	2/9/2019	MED	DISCHARGED	2644	18	W/S	10.5	50	NG
707	G.S	800079	39	M	3/9/2019	ICU	DISCHARGED	5230	5	PUS	11.3	16.6	NG
708	I.S	800380	19	M	3/9/2019	ICU	DISCHARGED	1702	10	PUS	11.7	16.4	NG
709	G.S	800318	37	M	3/9/2019	MED	DEATH	1494	18	TISSUE	11.5	18.4	NG
710	B.S	800345	67	M	3/9/2019	ICU	DISCHARGED	5377	19	TISSUE	11.6	25.6	NG
711	M.K	800464	21	F	4/9/2019	ICU	DISCHARGED	2370	7	PUS	9.7	15.3	NG
712	AKA	800374	25	M	4/9/2019	ICU	DISCHARGED	4811	31	W/S	11.7	16.6	NG
713	S.S	31929	58	M	5/9/2019	ICU	DEATH	8470	26	PUS	11.4	10.5	NG
714	A.S	801216	57	M	6/9/2019	MED	DISCHARGED	1257	16	W/S	9.5	12.6	NG
715	ANI	803771	61	F	6/9/2019	ICU	DISCHARGED	4321	9	W/S	11.8	14.3	NG
716	V.K	791845	36	F	6/9/2019	ICU	DISCHARGED	6334	9	PUS	11.3	3.9	NG
717	S.K	805345	78	F	8/9/2019	ICU	DAMA	3571	3	PUS	5.2	-	NG
718	M.L	356518	78	M	9/9/2019	ICU	DISCHARGED	8288	15	PUS	11.9	23.7	NG
719	P.S	800257	59	M	9/9/2019	ICU	DISCHARGED	9424	9	PUS	9.6	11.5	NG
720	M.K	803169	25	M	9/9/2019	ICU	DISCHARGED	1923	26	W/S	9.5	11.6	NG
721	M.B	800520	55	F	11/9/2019	ICU	DISCHARGED	3858	21	PUS	12.2	11	NG
722	S.L	798623	64	M	11/9/2019	ICU	DAMA	6002	10	W/S	10.2	11.3	NG
723	H.K	805389	56	F	11/9/2019	ICU	DISCHARGED	9580	5	W/S	7.6	18.8	NG
724	S.S	803730	64	M	13/09/2019	ICU	DISCHARGED	2725	39	W/S	7.6	5.3	NG
725	R.J	217861	43	M	13/09/2019	ICU	DISCHARGED	3872	11	W/S	11.3	5.2	NG
726	J.S	747313	81	M	14/09/2019	ICU	DISCHARGED	5818	12	W/S	8.6	2.8	NG
727	B.S	801356	35	M	14/09/2019	ICU	DISCHARGED	3529	10	W/S	10.4	29	NG
728	SUM	177978	54	F	16/09/2019	ICU	DEATH	1550	13	W/S	11.4	13.7	NG
729	G.S	809592	46	M	17/09/2019	ICU	DISCHARGED	6219	8	TISSUE	11.5	2.6	NG
730	GUD	812003	58	F	19/9/2019	ICU	DISCHARGED	2197	4	W/S	10.8	-	NG
731	L.S	808817	24	M	20/09/2019	ICU	DISCHARGED	1685	8	TISSUE	12.2	11	NG
732	SHAK	408672	70	F	21/09/2019	MED	DISCHARGED	4860	6	PUS	11.5	2.6	NG
733	M.S	806350	56	F	21/09/2019	MED	DISCHARGED	5868	9	PUS	12.3	-	NG
734	R.G	814748	65	M	21/09/2019	MED	DISCHARGED	3696	11	PUS	11.4	1.4	NG
735	R.S	813170	66	M	22/09/2019	ICU	DISCHARGED	1754	3	TISSUE	9.2	11.3	NG
736	M.S	755256	71	M	22/09/2019	MED	DISCHARGED	1192	9	PUS	11.4	1.4	NG
737	M.L	812256	68	M	23/09/2019	ICU	DISCHARGED	6687	22	PUS	9.2	11.3	NG
738	S.K	807946	61	M	24/09/2019	MED	DISCHARGED	7828	15	W/S	7.6	5.3	NG
739	B.K	811581	66	F	24/09/2019	ICU	DISCHARGED	3789	3	W/S	11.2	30	NG
740	DHAR	807252	61	M	24/09/2019	ICU	DISCHARGED	6902	16	PUS	9.3	12.1	NG
741	D.S	811616	38	M	25/09/2019	ICU	DISCHARGED	8842	58	W/S	9.6	11.5	NG
742	NEER	811595	27	M	25/9/2019	ICU	DISCHARGED	1729	8	W/S	9.5	11.6	NG
743	J.S	818182	47	M	26/09/2019	ICU	DISCHARGED	8660	6	PUS	10.8	-	NG
744	G.K	815497	33	F	26/09/2019	MED	DAMA	8918	10	W/S	12.2	11	NG
745	B.S	815575	50	M	26/09/2019	ICU	DEATH	1291	9	PUS	10.2	11.3	NG
746	J.N.S	145532	70	M	27/09/2019	ICU	DISCHARGED	1978	15	TISSUE	12.3	-	NG
747	A.S	818827	61	M	27/09/2019	ICU	DISCHARGED	1151	4	TISSUE	11.4	1.4	NG
748	M.K	818862	47	F	27/09/2019	MED	DISCHARGED	3417	25	PUS	9.2	11.3	NG
749	R.K.B	815566	55	M	29/09/2019	ICU	DISCHARGED	9128	6	PUS	10.6	10.4	NG
750	R.K	810501	41	M	29/09/2019	ICU	DISCHARGED	1485	16	PUS	10.8	-	NG
751	A.R	820303	63	F	30/09/2019	ICU	DAMA	2559	18	PUS	12.2	11	NG
752	N.K.K	791618	26	F	30/09/2019	ICU	DISCHARGED	2124	2	W/S	10.2	11.3	NG
753	R.K	809843	55	M	30/09/2019	ICU	DISCHARGED	1940	30	PUS	7.6	18.8	NG
754	A.K	166338	61	M	4/10/2019	ICU	DISCHARGED	1206	17	PUS	10.9	12.1	NG
755	N.K	820193	81	F	4/10/2019	ICU	DAMA	9845	21	PUS	10.1	14.2	NG
756	S.R	131351	66	M	4/10/2019	ICU	DAMA	3365	19	PUS	5.4	10.3	NG
757	M.L.G	435690	73	M	20/12/2019	ICU	DISCHARGED	9397	3	W/S	6.5	15.2	NG
758	S.K	815483	53	M	1/10/2019	MED	DISCHARGED	7993	15	PUS	11.4	13.7	NG
759	V.K	369431	73	M	1/10/2019	ICU	DISCHARGED	6895	18	W/S	11.5	2.6	NG
760	SHEI	645794	59	F	1/10/2019	MED	DISCHARGED	4090	14	PUS	12.3	-	NG
761	H.K	868294	50	F	20/12/2019	ICU	DISCHARGED	7284	11	PUS	8.6	15.2	NG
762	B.K	487433	47	F	20/12/2016	ICU	DISCHARGED	8935	6	W/S	7.5	11.3	NG
763	M.S	787900	50	M	24/09/2019	ICU	DISCHARGED	7071	10	W/S	11.3	0.3	NG
764	R.S	665926	58	M	24/09/2019	MED	DISCHARGED	7052	60	W/S	10.6	11.5	NG
765	N.K.K	813346	89	M	24/09/2019	SG	DISCHARGED	1420	7	W/S	5.2	-	NG

S.no:	NAME	MRD NO	AGE	SEX	DATE OF RECEIVING SAMPLE	loc	OUTCOME	LAB ID	NUMBER OF DAYS	SAMPLE	HEMOGLOBIN	TLC	CULTURE
766	K.R	816537	61	F	24/09/2019	ICU	DISCHARGED	6194	15	W/S	11.9	23.7	NG
767	S.D	805542	63	F	22/09/2019	ICU	DISCHARGED	6767	30	TISSUE	7.6	5.3	NG
768	S.K	812236	26	F	22/9/2019	ICU	DISCHARGED	8517	12	PUS	11.9	23.7	NG
769	SU.K	814549	68	M	22/09/2019	MED	DAMA	7067	4	W/S	9.6	11.5	NG
770	M.D	815548	50	F	27/09/2019	ICU	DISCHARGED	5717	19	PUS	7.6	18.8	NG
771	H.L	814589	81	M	27/09/2019	ICU	DISCHARGED	3758	54	W/S	11.4	13.7	NG
772	D.K	676387	72	F	27/09/2019	ICU	DAMA	3450	27	TISSUE	11.5	2.6	NG
773	H.S.C	474820	87	M	1/10/2019	ICU	DISCHARGED	6868	66	PUS	11.4	1.4	NG
774	J.K	820163	71	F	2/10/2019	ICU	DAMA	4045	11	PUS	9.2	11.3	NG
775	M.J	817391	33	F	2/10/2019	ICU	DISCHARGED	6545	12	TISSUE	7.6	5.3	NG
776	A.K	821960	61	F	2/10/2019	ICU	DISCHARGED	2973	32	PUS	11.6	51	NG
777	N.K	818845	19	M	3/10/2019	ICU	DAMA	7198	16	PUS	11.9	-	NG
778	N.S	802746	71	M	3/10/2019	ICU	DISCHARGED	6883	33	W/S	13.5	2.4	NG
779	M.K	676849	61	F	3/10/2019	ICU	DISCHARGED	9420	9	TISSUE	88	12.4	NG
780	A.K	822090	76	M	3/10/2019	ICU	DISCHARGED	3117	16	W/S	9.3	2.8	NG
781	N.L	386544	59	M	14/01/2019	ICU	DISCHARGED	3381	9	W/S	11.2	-	NG
782	S.D	805542	63	F	22/09/2019	ICU	DISCHARGED	5856	24	TISSUE	7.6	5.3	NG
783	N.S	803042	59	M	27/09/2019	ICU	DISCHARGED	3905	77	PUS	7.6	5.3	NG
784	S.J.K	32955	72	F	28/09/2019	MED	DISCHARGED	9240	14	W/S	10.5	11.2	NG
785	A.K	818670	41	M	28/09/2019	ICU	DISCHARGED	2256	10	PUS	11.5	11.6	NG
786	I.A	808074	58	M	14/09/2019	MED	DISCHARGED	4618	18	PUS	9.7	10.6	NG
787	S.D	810425	46	F	16/09/2019	ICU	DISCHARGED	7896	9	PUS	10.2	11.3	NG
788	S.K	803736	56	F	16/09/2019	ICU	DISCHARGED	5907	9	PUS	7.6	18.8	NG
789	T.K	767871	76	F	10/9/2019	MED	DISCHARGED	8648	15	W/S	10.5	11.2	NG
790	L.K	805282	60	F	10/9/2019	MED	DISCHARGED	3258	3	PUS	11.5	11.6	NG
791	G.S	790065	29	M	10/9/2019	ICU	DISCHARGED	1951	10	PUS	10.6	10.4	NG
792	R.D	800512	59	M	10/9/2019	ICU	DISCHARGED	9217	9	W/S	10.8	-	NG
793	V.J	805213	52	M	14/09/2019	ICU	DISCHARGED	8441	16	TISSUE	10.7	15.2	NG
794	S.M	794915	79	F	15/09/2019	ICU	DISCHARGED	1709	11	TISSUE	12.4	52	NG
795	P.D	807721	66	F	15/09/2019	MED	DISCHARGED	1387	15	PUS	12.2	11	NG
796	A.K	793957	63	M	25/08/2019	MED	DISCHARGED	9444	22	TISSUE	11.4	10.5	NG
797	AR.K	788364	58	M	25/8/2019	ICU	DISCHARGED	8817	10	W/S	11.8	14.3	NG
798	S.K	793494	71	F	26/8/2019	ICU	DAMA	5459	14	W/S	11.3	3.9	NG
799	S.B	796607	74	M	28/08/2019	MED	DISCHARGED	2377	12	PUS	11.4	26.1	NG
800	D.R	764260	65	F	28/08/2019	MED	DAMA	8241	6	W/S	11.1	20.9	NG
801	A.A	657597	47	F	28/08/2019	ICU	DISCHARGED	1506	34	PUS	18.5	10.6	NG
802	S.D	787459	71	F	28/08/2019	MED	DAMA	3912	19	TISSUE	8.6	2.8	NG
803	T.J	797706	75	F	31/08/2019	ICU	DAMA	8777	3	PUS	10.2	11.3	NG
804	R.K	503226	71	F	1/9/2019	ONCOLOGY	DISCHARGED	6422	8	PUS	8.6	2.6	NG
805	R.B	794243	51	M	1/9/2019	MED	DISCHARGED	4285	4	PUS	9.8	10.1	NG
806	S.D	795013	74	F	1/9/2019	ICU	DISCHARGED	8754	2	W/S	11.9	27.5	NG
807	PRI	805343	27	F	8/9/2019	MED	DISCHARGED	5667	5	PUS	11.2	30	NG
808	A.K	800485	22	M	8/9/2019	ICU	DAMA	6405	27	TISSUE	9.3	12.1	NG
809	B.K	799543	51	M	8/9/2019	ICU	DISCHARGED	1023	13	W/S	11.3	0.3	NG
810	S.D	799538	62	F	8/9/2019	ICU	DISCHARGED	7253	7	PUS	10.6	11.5	NG
811	S.R	799495	63	F	12/9/2019	ICU	DISCHARGED	3572	9	TISSUE	11.4	13.7	NG
812	T.R	204096	73	M	12/9/2019	ICU	DISCHARGED	4282	9	PUS	11.5	2.6	NG
813	N.C	35775	66	M	12/9/2019	ICU	DISCHARGED	8631	20	W/S	12.3	-	NG
814	T.R.N	207244	73	M	12/9/2019	ICU	DISCHARGED	5148	21	PUS	11.4	1.4	NG
815	V.S	808837	30	M	12/9/2019	MED	DEATH	9920	28	PUS	9.2	11.3	NG
816	A.S	811528	59	M	17/09/2019	ICU	DISCHARGED	7200	17	PUS	9.6	11.5	NG
817	GD.S	807274	75	M	17/09/2019	MED	DISCHARGED	3036	4	W/S	9.5	11.6	NG
818	K.K	807377	46	F	18/9/2019	MED	DISCHARGED	1357	16	W/S	10.5	11.2	NG
819	S.K	760063	66	F	16/09/2019	ICU	DISCHARGED	5970	11	PUS	11.5	11.6	NG
820	KAM	807844	56	F	18/9/2019	ICU	DISCHARGED	3850	12	PUS	10.6	10.4	NG
821	ASHW	794266	66	M	30/08/2019	MED	DISCHARGED	8360	22	TISSUE	10.7	15.2	NG
822	R.V	796458	66	F	30/08/2019	ICU	DISCHARGED	1497	21	PUS	12.4	52	NG
823	A.S	532726	31	M	30/08/2019	MED	DISCHARGED	7954	22	PUS	11.9	27.5	NG
824	B.S	796031	53	M	4/9/2019	ICU	DISCHARGED	1753	8	TISSUE	10.7	24.3	NG
825	P.J	796920	83	F	4/9/2019	MED	DISCHARGED	9198	8	TISSUE	8.1	40	NG
826	K.S	788400	61	M	4/9/2019	ICU	DISCHARGED	2903	5	W/S	6.6	3.7	NG
827	H.S	711200	25	M	16/08/2019	ICU	DISCHARGED	3696	11	W/S	11.9	27.5	NG
828	N.S	773645	48	M	18/08/2019	ICU	DAMA	6453	24	W/S	11.5	18.4	NG
829	S.K	766967	53	F	8/8/2019	ICU	DISCHARGED	2514	6	PUS	7.4	0.36	NG
830	S.K.D	742379	63	M	9/8/2019	ICU	DISCHARGED	1321	14	W/S	11.7	16.4	NG
831	H.S	776579	24	M	9/8/2019	MED	DISCHARGED	3340	25	PUS	11.5	18.4	NG
832	M.K	767170	56	F	17/07/2019	ICU	DEATH	4105	17	W/S	9.7	10.6	NG
833	M.S	767165	61	M	17/07/2019	ICU	DAMA	6524	7	TISSUE	10.7	15.2	NG
834	A.V	424314	61	M	18/07/2019	ICU	DISCHARGED	4363	3	W/S	12.4	52	NG
835	A.S	740367	61	M	28/06/2019	ICU	DISCHARGED	7774	16	PUS	10.6	11.5	NG
836	S.S.K	622132	86	M	28/06/2019	ICU	DISCHARGED	9622	22	PUS	5.2	-	NG
837	N.S	741368	24	M	28/06/2019	ICU	DISCHARGED	3156	23	W/S	11.9	23.7	NG
838	A.K	785998	54	M	13/09/2019	ICU	DISCHARGED	4492	8	W/S	8.6	2.8	NG
839	J.S	806411	61	M	13/09/2019	ICU	DISCHARGED	2494	12	PUS	10.4	29	NG
840	H.P.K	806097	56	F	13/09/2019	ICU	DISCHARGED	1419	6	W/S	9.7	10.6	NG
841	G.S	793212	38	M	26/8/2019	ICU	DISCHARGED	2009	27	TISSUE	10.6	11.5	NG
842	T.D	794935	64	M	26/8/2019	ICU	DISCHARGED	4558	5	TISSUE	11.9	12.7	NG
843	M.K	791107	73	M	26/08/2019	ICU	DISCHARGED	4059	33	W/S	11.9	23.7	NG
844	H.S	778349	31	M	23/08/2019	ICU	DAMA	4949	12	W/S	11.7	16.4	NG
845	M.S	793547	25	M	23/08/2019	ICU	DEATH	9598	18	TISSUE	11.5	18.4	NG
846	K.P	783252	47	M	24/08/2019	ICU	DAMA	7589	8	TISSUE	11.6	25.6	NG
847	J.K	810656	34	F	26/09/2019	ICU	DISCHARGED	4536	9	PUS	10.5	11.2	NG
848	S.S	815363	54	M	26/09/2019	ICU	DISCHARGED	5155	6	W/S	11.5	11.6	NG

S.no:	NAME	MRD NO	AGE	SEX	DATE OF RECEIVING SAMPLE	loc	OUTCOME	LAB ID	NUMBER OF DAYS	SAMPLE	HEMOGLOBIN	TLC	CULTURE
849	M.R	816202	81	M	26/09/2019	MED	DISCHARGED	4182	7	PUS	10.6	10.4	NG
850	P.S	783027	59	M	12/8/2019	ICU	DISCHARGED	3517	15	PUS	10.5	50	NG
851	V.S	786205	32	M	12/8/2019	ICU	DISCHARGED	5565	14	W/S	11.3	16.6	NG
852	H.S	776765	63	M	12/8/2019	MED	DAMA	9977	19	PUS	11.7	16.4	NG
853	B.K	716133	46	M	13/05/2019	ICU	DISCHARGED	8991	10	PUS	11.9	12.7	NG
854	J.R	663181	34	M	13/05/2019	MED	DISCHARGED	4806	9	W/S	11.9	23.7	NG
855	M.D.B	281727	28	M	13/05/2019	SG	DISCHARGED	9379	8	W/S	9.6	11.5	NG
856	G.S	728673	50	M	14/05/2019	ICU	DISCHARGED	7904	6	W/S	9.3	12.1	NG
857	M.L	727790	35	M	15/05/2019	ICU	DISCHARGED	1612	6	PUS	11.3	0.3	NG
858	C.S.N	753522	77	F	11/7/2019	ICU	DISCHARGED	6524	9	PUS	7.5	11.3	NG
859	J.S	139748	68	M	3/7/2019	MED	DISCHARGED	9030	12	W/S	11.4	13.7	NG
860	PAR	519503	66	M	3/7/2019	ICU	DAMA	4446	13	PUS	11.5	2.6	NG
861	N.T	753487	21	M	4/7/2019	ICU	DISCHARGED	9519	4	PUS	12.3	-	NG
862	D.S	734099	66	M	11/8/2019	MED	DISCHARGED	8212	20	W/S	6.6	3.7	NG
863	S.C.K	692500	71	M	11/8/2019	SG	DISCHARGED	8873	11	W/S	11.4	10.5	NG
864	S.D	4579	57	M	12/7/2019	ICU	DISCHARGED	4012	21	PUS	6.5	15.2	NG
865	V.K	761056	66	M	13/07/2019	ICU	DISCHARGED	2082	30	W/S	7.8	2.5	NG
866	P.S	759780	58	M	13/7/2019	ICU	DISCHARGED	6959	11	W/S	9.5	29	NG
867	P.G	763488	55	M	14/07/2019	ICU	DISCHARGED	7037	15	W/S	8.6	2.8	NG
868	H.S	779130	23	M	4/8/2019	ICU	DEATH	6885	10	PUS	18.5	14.8	NG
869	K.K	775086	60	F	4/8/2019	ICU	DISCHARGED	8730	17	W/S	10.9	11.8	NG
870	M.K	782204	53	M	5/8/2019	ICU	DEATH	9534	8	PUS	11.9	13.6	NG
871	C.S	776635	34	F	6/8/2019	ICU	DISCHARGED	6774	7	W/S	11.3	22	NG
872	W.A	772931	66	M	6/8/2019	MED	DISCHARGED	1173	15	PUS	11.6	11	NG
873	M.K	776684	58	F	11/8/2019	MED	DISCHARGED	3043	25	PUS	9.5	12.6	NG
874	K.K	613804	56	M	11/8/2019	ICU	DISCHARGED	2828	25	TISSUE	11.8	14.3	NG
875	N.S	781108	57	M	11/8/2019	ICU	DISCHARGED	8528	5	PUS	11.3	3.9	NG
876	K.R	811572	67	F	20/09/2019	ICU	DAMA	7329	10	PUS	10.2	11.3	NG
877	R.S	812988	34	F	20/09/2019	MED	DISCHARGED	3450	14	TISSUE	7.6	18.8	NG
878	GRACY	805290	71	F	21/09/2019	MED	DEATH	5641	16	PUS	11.4	13.7	NG
879	R.K	788197	30	F	17/08/2019	ICU	DISCHARGED	7249	36	TISSUE	8.1	16.2	NG
880	D.P.S	779720	23	M	17/08/2019	ICU	DISCHARGED	1915	6	PUS	10.5	50	NG
881	K.S	782271	36	M	17/08/2019	ICU	DAMA	2038	5	PUS	11.3	16.6	NG
882	P.S	782073	68	M	18/08/2019	MED	DEATH	9662	9	W/S	11.7	16.4	NG

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The Principal,
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Subject: Approval of Plan of Thesis.

This is to inform you that the Faculty of Medical Sciences in its meeting held on 29.05.2019 has approved the plan of thesis of **Prateet Kaur**, a student of your college for **MD Microbiology** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis

Clinico-Microbiological profile of wound infections in admitted patients

Supervisor
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The student has to submit the four copies of thesis (along with PDF format) , to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She must directed to attach a photocopy of this letter with the forwarding letter while submitting thesis to the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic,(if any).

SP Singh

Dr. S P Singh MS(Oph)
Controller of Examinations

Note :

1. *If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after issue of this letter.*
2. *The student may submit the thesis as per the schedule already conveyed i.e. for May/June examination 30th Nov of the preceding the year of examination and for Nov/Dec examinations 31st May of the year of examination.*

CLINICO-MICROBIOLOGICAL PROFILE OF WOUND INFECTIONS IN ADMITTED PATIENTS.

THESIS PROPOSAL

FOR APPROVAL OF SUBJECT OF THESIS TO BE SUBMITTED IN

PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

DOCTOR IN MEDICINE

IN

MICROBIOLOGY

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES

FARIDKOT

August, 2018

DR. PRATEET KAUR

DEPARTMENT OF MICROBIOLOGY
DAYANAND MEDICAL COLLEGE AND HOSPITAL
LUDHIANA

ABSTRACT OF PLAN OF THESIS

Title	CLINICO- MICROBIOLOGICAL PROFILE OF WOUND INFECTIONS IN ADMITTED PATIENTS.
For the degree of	MD (Microbiology)
Name of the candidate	Dr. Prateet Kaur
Supervisor	Dr. Veenu Gupta, Professor, Department of Microbiology, DMCH, Ludhiana
Co-supervisors	Dr. Deepinder K. Chhina, Professor and Head Department of Microbiology, DMCH, Ludhiana Dr. Jaspal Singh, Professor and Head Department of Surgery, DMCH, Ludhiana
Institution	Dayanand Medical College and Hospital, Ludhiana
University	Baba Farid University of Health Sciences, Faridkot

Introduction: In developing countries like India, large number of people die daily of preventable and curable diseases such as wound infections. Bacterial infections among various wounds are a common cause of hospitalization. Antibiotic resistance among the bacterial pathogens in the hospital and community has been a concern for the health care providers. These infections are an important reason for prolonged hospitalization, leading to increased treatment costs and poor patient outcome due to antibiotic treatment failures. This study aims to monitor the distribution of pathogens and their susceptibility pattern to commonly used antimicrobial agents in wound infections.

Aim of study: 1) To isolate and identify the bacteria causing wound infections. 2) Characterization and antimicrobial susceptibility of the bacterial isolates.

Materials and Methods: This prospective study will be carried out in the Department of Microbiology, Dayanand Medical College and Hospital, Ludhiana over a period of one year. All wound exudate samples from patients suspected of wound infections admitted in the hospital will be included. Bacteria will be isolated and further characterization and antimicrobial susceptibility testing will be done.

Clinical significance: To promote rational use of antimicrobials.

Keywords: Wound infections, Antimicrobial susceptibility testing.

(Signature) Candidate	(Signature) Co-supervisor	(Signature) Co-Supervisor	(Signature) Supervisor	(Signature) Principal

CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of thesis titled **"CLINICO-MICROBIOLOGICAL PROFILE OF WOUND INFECTIONS IN ADMITTED PATIENTS"** exist in the Department of MICROBIOLOGY, DMC&H, Ludhiana and will be provided to the candidate. We will see that the data being included in the thesis is genuine and is collected by the candidate herself under our supervision and guidance.

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APPROVAL PROFORMA
BY
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2. HOD Surgery	2. HOD Pathology
3. HOD Pathology	3. HOD Pharmacology
4. HOD Medicine	4. HOD SPM
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Approved : Yes / No

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BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

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4	DATE OF ADMISSION OF COURSE	10TH MAY,2018
5	TITLE OF THE TOPIC	CLINICO-MICROBIOLOGICAL PROFILE OF WOUND INFECTIONS IN ADMITTED PATIENTS.

6. BRIEF RESUME OF THE INTENDED WORK

6.1 NEED FOR STUDY

The battle between bacteria and their susceptibility to antimicrobials is problematic among clinicians, researchers, drug companies and public looking for effective drugs. Spreading of resistant bacteria rapidly have affected the effectiveness of antimicrobials creating a worldwide problem. Further wound infection by resistant bacteria worsens the condition.

The emerging antibiotic resistance among bacterial pathogens of wounds in the hospital and community has been a concern for the health care providers due to the limited treatment options [1].

Wound colonization is most frequently polymicrobial, involving numerous microorganisms that are potentially pathogenic, any wound is at some risk of becoming infected. Exposed subcutaneous tissue provides a favourable environment for a wide variety of microorganisms to contaminate and colonize, and if the involved tissue is devitalized (e.g., ischemic, hypoxic, or necrotic) and the host immune response is compromised, the conditions become optimal for microbial growth. In the event of infection, a wound fails to heal, the patient suffers increased trauma, wound management practices become more resource demanding and treatment cost rises. [2]

Infections caused by multidrug-resistant (MDR) organisms are associated with high morbidity and mortality. Reporting of ESBL, Amp C β - lactamase, carbapenemase, vancomycin resistance and methicillin resistance producing organisms will help in preventing spread of multidrug resistant isolates.

Thus, surveillance of antimicrobial resistance in frequently isolated bacterial pathogens is of importance [3].

Inadequate therapy for infections acquired in the intensive care unit (ICU) is associated with increased mortality [4], also the frequent use of broad-spectrum antibiotics means that the ICU environment has become a place of multiresistant microorganisms. Infections caused by multiresistant Gram-negative bacteria such as *Pseudomonas aeruginosa* and *Acinetobacter baumannii* have become a serious problem worldwide. [5]

This study aims to monitor the distribution of bacterial pathogens among wounds and their susceptibility pattern to commonly used antimicrobial agents. It is also important for deciding empirical therapy on local epidemiological resistance profile of the antimicrobial agents [1].

6.2 REVIEW OF LITERATURE

Skin plays an important role in the sustainence of life through the regulation of water and electrolyte balance and thermoregulation. Also it provides barrier to external noxious agents including microorganisms. A wound results whenever there is break in epithelial integrity. Large number of people die daily of preventable and curable diseases such as wound infections.

Wound infections are one of the most common hospital acquired infections and are an important cause of morbidity and account for 70-80% mortality.[6,7] The resistance of bacteria to antimicrobials is also a significant cause of severe wound infections. These resistant pathogens were considered primarily to be nosocomial, but now it is evident that they have spread to the community and have become significant threat to public as there are fewer, sometimes even no, antimicrobials available for these infections.[8]

In a prospective six month study in 2012 by Das munmun et al, a total of 225 specimens from various surface wounds were collected. A total of 186 bacterial isolates from 142 culture positive samples which consisted of 80 Gram-negative bacilli, 102 Gram-positive organisms, 4 atypical *Mycobacteria* and 4 *Candida albicans* were recovered. *Staphylococcus aureus* was the commonest (41.93%) followed by *Escherichia coli* (11.82%) and *Pseudomonas aeruginosa* (9.67%) and coagulase negative *Staphylococcus* (7.53%). (MRSA) Methicillin resistant *Staphylococcus aureus* was found to be 35.9% and all Gram positive isolates were sensitive to vancomycin. For Gram-negative bacilli, amikacin was most effective drug while β-lactam drugs and ciprofloxacin showed least sensitivity. Polymyxin B emerged as most sensitive agents against

Pseudomonas aeruginosa and *Acinetobacter spp.* The antimicrobial susceptibility pattern suggested that drug therapy for wound infections should always be guided by the sensitivity reports for effective management of surface wound infections. [9]

A 8 month cross sectional study was conducted in 2011 by Girma Godebo et al on 322 wound samples. The overall MDR among Gram positive and Gram negative bacterial isolates were (77%) and (59.3%) respectively. About, 86.2% *S.aureus* and 28.6% of Coagulase negative Staphylococci became MDR. Nearly 30.1% of *S.aureus* was resistant to 6 classes of antimicrobials. The average MDR rate of *Providencia, Proteus* and *Klebsiella* species was 75% 74.8%, and 69.6%. About, 30.8% of *Proteus sp*, 32.6% of *Klebsiella sp* and 61% of *Citrobacter sp* were resistant to 4 classes each. The average MDR rate for *Citrobacter sp* was 100%. About (76.7%) of *S.aureus* was Oxacillin/Methicillin resistant while (16.4%) were Vancomycin resistant. *Proteus* species was the predominant isolates (27.9%) followed by *P.aeruginosa* and *S.aureus* (19.3%) and (19%) respectively. This study suggested that the overall rate of MDR bacterial pathogens that caused wound infection was very high. Many of the isolates were also identified as resistant to 3 or more classes of antimicrobials. Such widespread resistance to antimicrobial classes is serious. [10]

The resistance among bacteria to carbapenems and colistin is increasing worldwide. In a study by Manohar et al during August 2014- March 2015, a total of 89 Gram negative bacterial isolates were collected from two different laboratories. Isolates were subcultured on MacConkey agar and identified. Of the identified clinical isolates, 81% belonged to family

Enterobacteriaceae. Identified isolates were: 48% *Escherichia coli* followed by 20% *Klebsiella pneumoniae*, 11% *Pseudomonas aeruginosa*, 7% *Enterobacter cloacae*, 7% *Acinetobacter baumannii*, 4% *Klebsiella oxytoca*, 2% *Proteus mirabilis* and 1% *Salmonella Paratyphi*. The detection and of carbapenemase production was done. MIC of meropenem was determined by agar dilution method and results were interpreted using CLSI guidelines. MIC for colistin was determined by broth microdilution method and it showed that 65 %were resistant to meropenem and 32 % isolates were resistant to colistin, whereas 30% isolates were resistant to both antibiotics respectively. [11]

In a study by Pilli Hema Prakash Kumari et al over 6 months, 100 pus samples from surgical departments of an institute of medical sciences and research were taken. Highest number of pus samples were from incision and drainage (23.8%) followed by chronic non-healing ulcer (19.04%). 21 different bacterial isolates were obtained from 100 pus samples. *S. aureus* was the predominant bacteria (28.5%) followed by coagulase-negative Staphylococci (23.8%). Majority of the isolated organisms were MDR. *S. aureus* showed highest sensitivity to antibiotics like linezolid (83.3%) and teicoplanin (50%). Among the 5 isolated strains of coagulase-negative Staphylococci (CONS), 3 of them were MDR and the other 2 showed sensitivity to antibiotics cefaperazone, co-trimoxazole and ticarcillin/clavulanic acid (20%). Among the 9 isolates of Enterobacteriaceae, 1 isolate of *E. coli* (11.1%), 2 isolates of *Klebsiella* species (22.2%) showed ESBL production. The isolated 4 strains of *P. aeruginosa* showed ESBL production (44.4%). These organisms were screened for carbapenemase production, 5 strains possessed carbapenemase enzyme

production (71.4%) and thus acquired resistance to carbapenem antibiotics. Carbapenemase production was not detected in the 2 isolates of *P. aeruginosa* among the 4 tested strains. The overall results showed that 85% of the isolated strains showed MDR to certain classes of antibiotics. The main purpose of the study was to assess prevalence, microbiological profile and antibiograms of aerobic bacteria isolated from pus samples.[12]

Infections are common problems in surface wounds that occur as complications of trauma, surgical interventions, burn and secondary to invasive procedures. It is one of the key reasons for increased risks of patient morbidity and mortality. Bacteria seek to establish themselves in ecological niches to ensure survival and evolution. Open wounds are suitable bacteria to come and create their own niche. [13] Source of wound infections include patients' own commensal flora or organisms present in the nosocomial environment which are introduced to the patient by medical procedures or following surgery or trauma.[14] In order of frequency, *Staphylococcus aureus (S. aureus)* accounts for 30-50% of skin and soft tissue infections followed by Gram-negative bacteria, non-fermenters, *Streptococcus pyogenes* and anaerobes. [15]

Another three month study was conducted at Wardha in 2014 for detecting MDR, XDR, PDR bacteria based on their antimicrobial susceptibility profiles. Out of total 1060 bacterial strains studied, 314 (29.6%) bacterial strains were Gram positive cocci (GPC) and 746 (70.4%) were Gram negative bacilli (GNB). Out of 314 GPC, 252 (80.3%) were coagulase positive staphylococci. Amongst 746 GNB, 261 (35%) were *E. coli* which was commonest, followed by *Pseudomonas aeruginosa* 212 (28.4%). MDR and XDR strains were 393

(37.1%) and 146 (13.8%) respectively. Amongst 314 GPC strains, 143 (45.5%) MDR and 56 (17.8%) XDR were isolated. Out of 746 GNB isolates, 250 (33.5%) strains were MDR and 90 (12.1%) were XDR. No PDR strain was detected.

In this study, 137 (18.4%) ESBL producing strains were isolated. Of 746 GNB isolated, 13% strains were (Carbapenem) imipenem resistant. Also all Gram negative bacteria were 100% sensitive to colistin. Hence, close monitoring of MDR, XDR, PDR must be done by all microbiological laboratories to implement the effective measures to reduce menace of antimicrobial resistance.[16]

In a 1-year prospective study from Jan - Dec 2016 at Aurangabad, blood, pus/wound swabs, sputum, drain fluids, and urine samples were considered in cancer patients. Gram-negative isolates were 76 (69.09%) whereas Gram-positive isolates were 26 (23.63%). Bacteria isolated were *E. coli*, 25 (22.72%) followed by *Acinetobacter* spp. 22 (20%), *S. aureus* 17 (15.45%), and *P. aeruginosa* 12 (10.90) and *Klebsiella* spp. 12 (10.90%). Antimicrobial sensitivity testing was done. 71% of the total Gram Negative bacteria were ESBL producers. ESBL production in *E. coli* and *Klebsiella* was 68% and 66%, respectively. Resistance to carbapenems was highest among *Pseudomonas* (25%) and *Klebsiella* (25%) followed by *Acinetobacter* (22%). MRSA were seen to be 17.64% among Gram-positive bacteria. [17]

This situation warrants the implementation of an efficient infection control program and intensive surveillance of bacteria so as to establish a rational antibiotic program for sustainable management of infections. [2]

As wound infections are largely hospital acquired and the infecting pathogens not only differ from country to country, but also vary from one hospital to another within the same country. [15]

A retrospective study was conducted from Sept 2009 - Aug 2012 by Dagnachew Muluye et al. A total of 628 study subjects with pus and/or wound discharge were included in the study. Bacteria isolated were 441 (70.2%). About 331/ 441 (75.0%) of the total isolates were *Staphylococcus aureus* (32.9%), CONS (14.7%), *Streptococcus* spp. (11.6%), *Escherichia coli* (9.5%), *Klebsiella* spp. (6.3%). The result showed that 66.2% of the isolates were resistant to tetracycline, followed 59.8% for ampicillin, 59.1% for cotrimoxazole, 51.7% for penicillin; least resistant being 6.3% for gentamycin. This study aimed to assess bacterial isolates and their drug susceptibility patterns from pus and/or wound isolates. [18]

A cross-sectional study of 7 months by Mahat P et al was carried out in aseptically collected pus samples from wound infections in suspected patients of a hospital in Nepal. A total of 503 pus samples were collected. Out of a total 220 bacterial isolates; 158 (71.82%) were Gram negative and 62 (28.18%) were Gram positive bacteria. *Pseudomonas spp.* (34.55%) was most common followed by *Staphylococcus aureus* (21.36%), *Escherichia coli* (11.82%), *Acinetobacter baumannii* (11.36%), *Enterobacter aerogens* (8.18%), CONS (5.45%), *Klebsiella pneumoniae* (4.55%), *Citrobacter freundii* (1.36%), *Streptococcus spp.* (0.91%) and *Enterococcus spp.* (0.46%). Most of Gram negative bacteria (63.9%) and Gram positive bacteria (93.5%) were susceptible to amikacin and chloramphenicol respectively. Among 220 isolates, 138

(62.73%) were found to be MDR. In this study, significant number of MDR strains was found as the causative agent of wound infection. So, routine microbiological analysis of the wound specimen and their antibiotic susceptibility testing are recommended which will guide medical practitioners for empirical treatment of wound infection, so as to reduce the spread of resistant bacteria. [19]

The various injuries result in development of wounds which drags the patient to health care facilities. Bacterial infections are serious problems to the successful treatment of the wounds resulting in complications sometimes leading to fatal sepsis. Over 95% of all injury-associated deaths among children occur in low-income and middle-income countries.[20] In a 9 month cross sectional study in Kathmandu from sept 2012 - may 2013 by Salu Rai et al, a total of 450 pus/wound swab samples were taken. Methicillin-resistant *Staphylococcus aureus* isolates were detected by using cefoxitin disc and confirmed by determining minimum inhibitory concentrations (MIC) of oxacillin. 264 (59%) samples were culture positive. The highest incidence of bacterial infections was noted in the age group of less than 1 year (76%). Out of 264 growth positive samples, Gram-positive bacteria were isolated from 162 (61%) samples and Gram-negative bacteria were found in 102 (39%) samples. *Staphylococcus aureus* (99%) was the predominant Gram-positive bacteria isolated and *Pseudomonas aeruginosa* (44%) was predominant amongst the Gram negative bacteria. About 19% were found to be MRSA. *Staphylococcus aureus* followed by *Pseudomonas aeruginosa* were the most common bacteria causing wound infections in children. [21]

Antibiotics, although, have been of great value in treatment and in prophylaxis to prevent infections, the timing of administration, choice of antimicrobial agent, durations of administration have clearly defined the value of antibiotics in reducing wound infections. [22] The exposure of subcutaneous tissue following a loss of skin integrity (i.e. a wound) provides a moist warm and nutritive environment that is conducive to microbial colonization and proliferation. The progression of a wound to an infected state is likely to involve a multitude of microbial and host factors. Wound infections remain an ongoing problem which although, cannot be completely eradicated however, by taking prompt control measures against the most commonly isolated organism and proper care of wound may lead to the minimum of wound infection. [2]

6.3 AIMS OF THE STUDY

- To isolate bacteria causing wound infections.
- Characterization and antimicrobial susceptibility of the isolates.

7. MATERIALS AND METHODS

This prospective study will be carried out in the Department of Microbiology, Dayanand Medical College and Hospital, Ludhiana over a period of one year.

7.1 SOURCE OF DATA

The pus, wound swab, exudate samples will be obtained from various types of wounds from the patients suspected with wound infections admitted in the various wards and ICUs of DMCH, Ludhiana.

7.2 METHOD OF COLLECTION OF DATA

Inclusion criteria:

- Patients of age group >18 years admitted will be included.

Sample Collection:

- The wound exudate from wounds (post-operative and others), burns and abscesses will be collected in sterile containers using all aseptic precautions.

Transportation: Samples once collected will be transported immediately to microbiological laboratory.

Processing of samples:

- All samples received will be processed as per standard protocol.

Direct microscopy

Gram staining will be done.

Culture

All samples will be inoculated by a sterile inoculating loop on Blood agar plate and Mac Conkey's agar plate of receiving the sample. Culture plates will be incubated at 35-37°C for 24-48hrs.

If anaerobic infection is suspected, pus sample will be inoculated in Robertson's cooked meat media and subcultured to blood agar. Culture plates will be incubated at 35-37°C for 48-72hours.

Identification-

Isolates will be identified on the basis of Gram staining, colony characteristics, motility, biochemical reactions, VITEK-2 etc.

Antimicrobial susceptibility testing:-

Antimicrobial susceptibility testing will be done using VITEK-2 system in which Gram negative isolates will be tested for all antibiotics like Ampicillin, Amoxyclav, Piperacillin/Tazobactam, Ticarcillin, Ceftriaxone, Ceftazidime, Cefixime, Cefepime, Cefaperazone/Sulbactam, Doripenam, Imipenam, Meropenam, Ertapenam, Amikacin, Gentamycin, Ciprofloxacin, Levofloxacin, Minocycline, Tigecycline, Cotrimoxazole.

Gram positive isolates will be tested for all antibiotics like Penicillin, Oxacillin, Gentamycin, Ciprofloxacin, Levofloxacin, Erythromycin, Clindamycin, Linezolid, Daptomycin, Teicoplanin, Vancomycin, Tetracycline, Streptomycin, Cotrimoxazole, Rifampicin.

Drug resistance mechanisms:

For Gram negative bacteria, screening and confirmation for ESBL, AmpC and Carbapenemase production will be done. The antimicrobial discs used for screening will be Cefotaxime or Ceftazidime (for ESBLs), Cefoxitin (for AmpC β-lactamase) and Ertapenem (for MBL).

For Gram positive bacteria, Screening and detection of MRSA and VRE will also be done.

Multidrug resistant means resistant to one or more antimicrobial agent. Extensive drug resistance means resistance to one more agents of more than one class of antimicrobial agents. Pan drug resistant means resistant to all antimicrobial agents. Characterization into MDR, XDR and PDR organisms will be done. [23]

Statistical analysis: Data obtained from the study will be analyzed by using the Z test and descriptive statistical methods.

7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY.

Not Applicable

7.4 HAS ETHICAL CLEARANCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3?

Not applicable

8. LIST OF REFERENCES.

1. Veeraraghavan B, JesudasonMR, Prakasah JA, Anandan S, Sahni RD, Pragasam AK,et al. Antimicrobial susceptibility profiles of gram-negative bacteria causing infections collected across India during 2014–2016: Study for monitoring antimicrobial resistance trend report. Indian J Med Microbiol. 2018;36:32-6.
2. Bowler P, Durden B, Armstrong D. Wound Microbiology and Associated Approaches to Wound Management. ClinMicrobiol Rev. 2001;14:244-69.
3. Hindler JA, Humphries RM. Colistin MIC. Variability by Method for Contemporary Clinical Isolates of Multidrug-Resistant Gram-Negative Bacilli. Journal of Clinical Microbiol. 2013;51:1678-84.
4. Kollef MH, Sherman G, Ward S, Fraser VJ. Inadequateantimicrobial treatment of infections: a risk factor formortality among critically ill patients. Chest. 1999;115:432–74.
5. Livermore D. Multiple mechanisms of antimicrobial resistance in Pseudomonas aeruginosa: our worst nightmare? Clin Infect Dis. 2002;34:634–40.
6. Gottrup F, Melling A, Hollander DA. An overview of surgical site infections: aetiology, incidence and risk factors. EWMA journal. 2005;5:11-5.
7. Wilson AP, Gibbons C, Reeves BC, Hodgson B, Liu M, Plummer D, et al. Surgical wound infection as a performance indicator: agreement of common definitions of wound infection in 4773 patients. Bmj. 2004;329:720.

8. Bhatt P, Tandel K, Shete V, Rathi KR. Burden of extensively drug-resistant and pandrug-resistant Gram-negative bacteria at a tertiary-care centre. New Microbes and New Infections. 2015;8:166-70.
9. Munmun D, HirakRJ. Microbiological Profile of Wound Infections and their Antimicrobial Susceptibility Pattern in a Peripheral Tertiary Care Hospital of Eastern India. Int.J.Curr.Microbiol.App.Sci.2017;6:759-65.
10. Godebo G, Kibru G, Tassew H. Multidrug-resistant bacterial isolates in infected wounds at Jimma University Specialized Hospital, Ethiopia. Annals of clinical microbiology and antimicrobials. 2013;12:17.
11. Manohar P, Shanthini T, Ayyanar R, Bozdogan B, Wilson A, Tamhankar A, et al.The distribution of carbapenem- and colistin-resistance in Gram-negative bacteria from the Tamil Nadu region in India.J. Med. Microbiol. 2017;66:874-83.
12. KumariPHP, RaniPU, LakshmiPV. Evaluation of microbiological profile andantibiogram of aerobic bacteria isolated from pussamples. J Med Allied Sci. 2018;8:6-35.
13. Stephan J, Landis MD. Chronic Wound Infection and Antimicrobial Use. Adv. skin wound care.2008;21:531-40.
14. Forbes BA, SahimDF, Weissfeld AS. In Bailey and Scott's Diagnostic Microbiology; 11th ed., Mosby Inc;2002. p. 978-9.
15. Ogunsola FT, Oduyebo O, Iregbu KC, Coker AD, Adetunji A. A review ofnosocomial infections at LUTH; problems and strategies. J NigerianInfection Control Association. 1998;1:213–7.

16. BasakS, Singh P, RajurkarM. Multidrug Resistant and Extensively Drug Resistant Bacteria: A Study.J Pathog.2016:1-5.
17. Nazneen S, Mukta K, Santosh C, Borde A. Bacteriological trends and antibiotic susceptibility patterns of clinical isolates at Government Cancer Hospital, Marathwada. Indian J Cancer. 2016;53:583-6
18. Muluye D, Wondimeneh Y, Ferede G, Nega T, Adane K, Biadgo B, et al. Bacterial isolates and their antibiotic susceptibility patterns among patients with pus and/or wound discharge at Gondar university hospital. BMC research notes. 2014;7:619.
19. Mahat P, Manandhar S, Baidya R. Bacteriological Profile of Wound Infection and Antibiotic Susceptibility Pattern of the Isolates. J Microbiol Exp.2017;4:00126.
20. Peden M, Oyegbite K, Ozanne-Smith J.Worldreporton child injury prevention," Tech. Rep. 232, World HealthOrganization; 2008.
21. Rai S, Yadav UN, Pant ND, YakhaJK, TripathiPP, Poudel A, et al. Bacteriological profile and antimicrobial susceptibility patterns of bacteria isolated from pus/wound swab samples from children attending a tertiary care hospital in Kathmandu, Nepal. International journal of microbiology. 2017;2017:2529085, 5 pages
22. Nichole RE. Preventing surgical site infection: a surgeon's perspective. Emerg Infect Dis.2001;7:220-4.
23. Magiorakos AP, Srinivasan A, Carey RB, Carmeli Y, Falagas ME, Giske CG, *et al.* Multidrug resistant, extensively drug-resistant and pandrug

resistant bacteria: an international expert proposal for interim standard definitions for acquired resistance. Clin Microbiol Infect. 2012;18:268-81.

PROFORMA

Name:

MRD No:

Age/Sex:

Date of admission:

Date of receiving sample:

Site of wound:

Type of wound:

Surgery if done: Outside or Inside the hospital.

Clinical Diagnosis:

Antibiotics patient is on:

Other investigations:

Macroscopic appearance of Wound discharge:

Microscopy:

Gram Staining:

Culture Report:

Candidate Signature

Supervisor Signature

Antibiotic Susceptibility:

Characterisation of isolates:

ESBL/ AmpC/ Carbapenemase producers:

MRSA/VRE:

MDR/XDR/PDR:

Outcome:

Candidate Signature

Supervisor Signature